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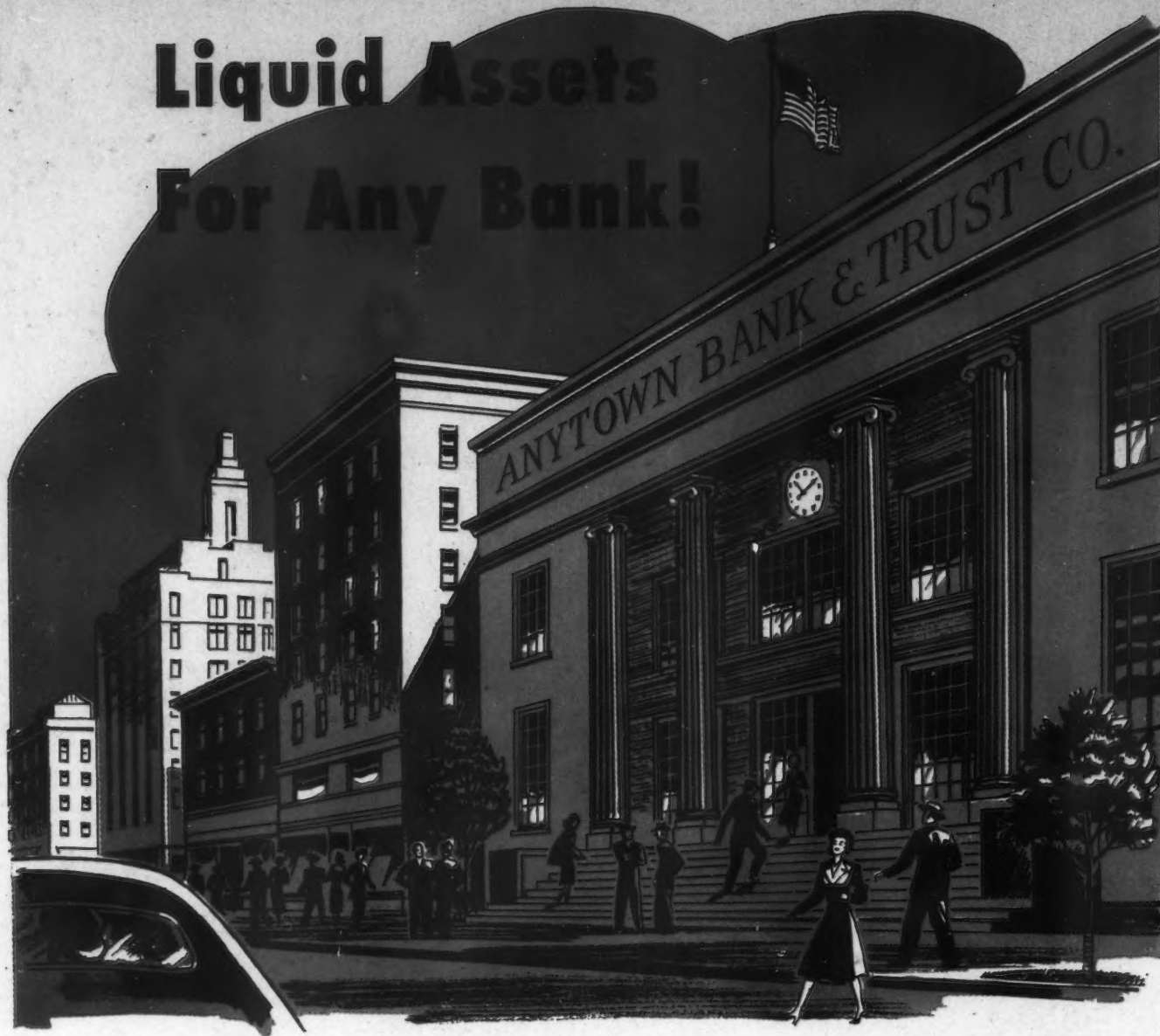
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AUGUST 1948

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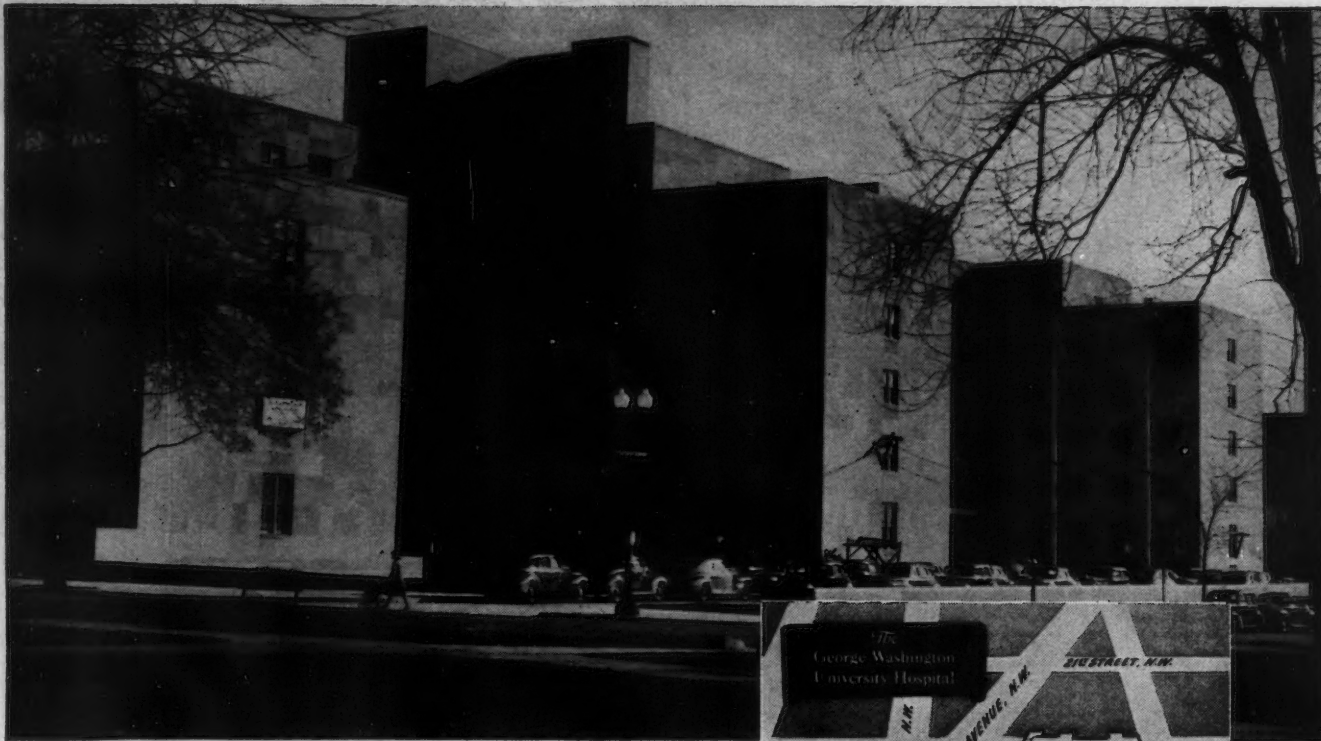


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Six stories in height, it is 400 x 185 ft. at wing projections, with 240,000 sq. ft. of floor space. The building frame is reinforced concrete, with wall construction of Indiana Limestone backed up with brick. In concreting

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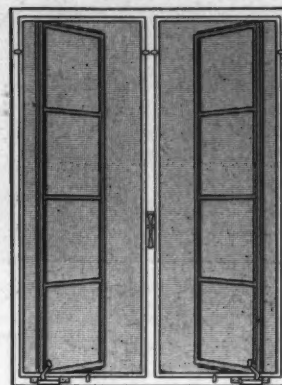
See Ceco catalogs in Sweet's Architectural File or send for free descriptive literature



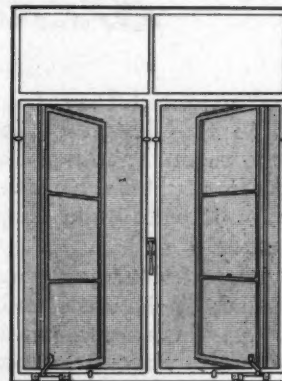
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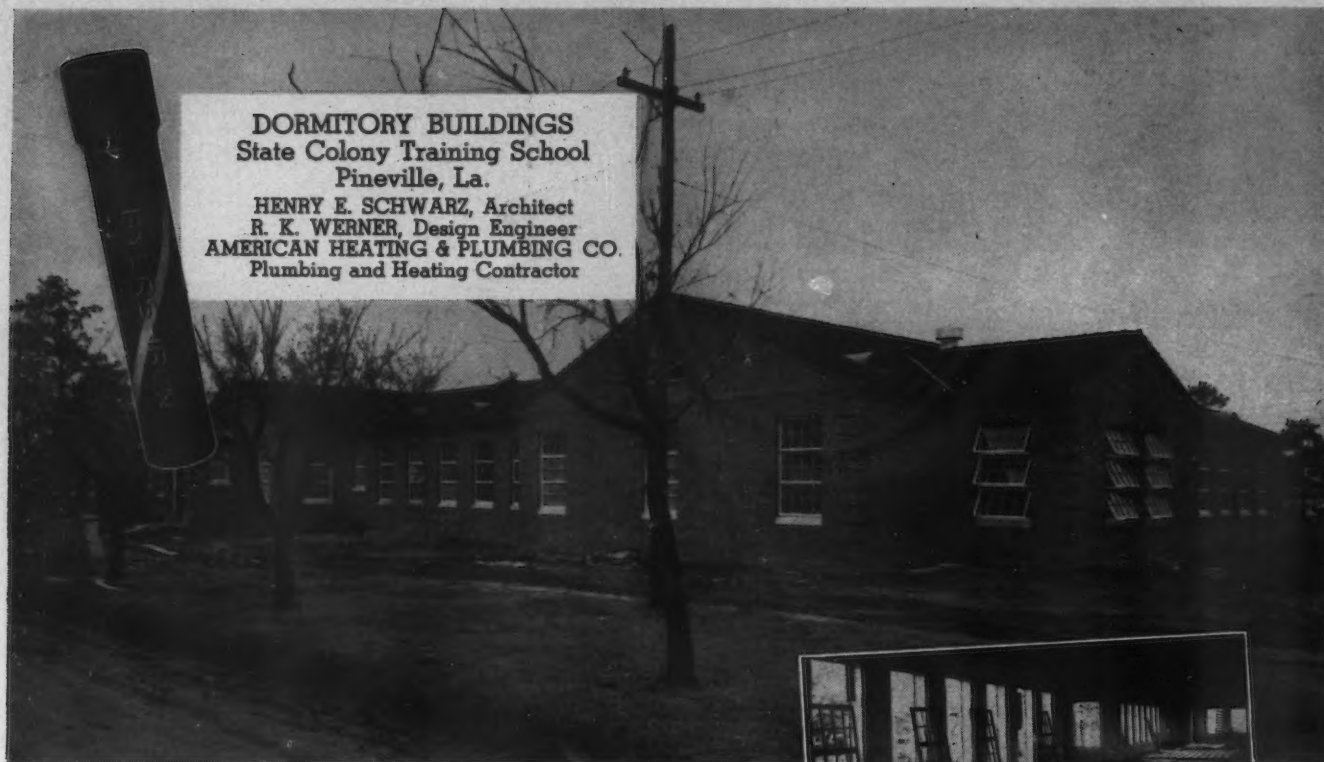


Here is another popular type, 2423. Notice the fixed transom above the ventilators to help with drapery problems. Window dimension is 3'1" wide x 4'2 1/2" high. Illustrated with screens. In addition, many other types and sizes are available.

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... the comfort of the occupants is safeguarded, by the use of radiant heating ... which assures warm floors, and mild, uniform temperature conditions throughout the rooms.

... the safety of the occupants is safeguarded, by the elimination of exposed heating units. Completely sanitary conditions are easy to maintain, and accident hazards are eliminated.

... the durability and dependability of the installation is safeguarded, by the use of Byers Wrought Iron pipe for the radiant heating coils, and for the water lines. No institution today has funds to spare for frequent repairs and replacements. The proven cor-

rosion-resistance of wrought iron gives extra protection against excessive maintenance.

WHY WROUGHT IRON LASTS

The superior durability of wrought iron, which has led to its widespread use, is the direct result of its unusual composition and structure. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and "detour" corrosive attack, and so discourage pitting. The fibers also anchor the initial protective scale, which shields the underlying metal. In radiant heating installations, wrought iron offers important added advantages: ease of fabrica-

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ARCHITECTURAL RECORD



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THE RECORD REPORTS

Congress Adjourns with T-E-W Bill Shelved and FHA Title VI not Renewed • OK'd Defense Controls May Affect Building • Hospital Program Pushed

No matter who sits in the White House next year, housing will remain paramount in the operations of the federal government. Everyone in Washington thinks so. While some of the excitement has eased since the hectic days that brought Wilson Wyatt into the national set-up to speed home building, the post-war construction saga still has a long way to go.

This was made clear not only by the failure of Congress to act on the Taft-Ellender-Wagner housing bill but also by the action of the Republican convention in Philadelphia in placing a housing plank in the party platform.

Rather than putting through the T-E-W measure, Congress approved, in its closing hours, a piecemeal housing bill — S. 2790 — which portends a drastic drop in federally-aided large scale rental housing construction in October. At least those who follow financing trends are looking for the reserve of approved loan construction to take a sharp dip beginning in that month. This, they say, is an inevitable result of the failure of Congress to renew Title VI FHA loan guarantees, thus knocking the prop out from under a sizeable part of the credit structure in home building.

The bill affects three million or more home-seeking citizens no less than the hotly-contested issues of ERP, the draft, civil rights, income taxes, etc. All these were crowded into the last minute legislative debate, complicating the final consideration of all bills.

Committee Urgings Ignored

In its haste to adjourn, Congress ignored the advice of its Joint Committee on Housing by failure to enact extension of Title VI FHA home loan guarantees. This had been proposed to satisfy the short-term needs of home builders. In respect to long-term requirements, Congress ignored again its committee's recommendations except for one thing — the 95 per cent loan guarantees to veterans who wish to combine their housing efforts and build cooperatively.

The construction industry, therefore, is adjusting to a new, less liberal financing policy. This policy (1) permits lending institutions to sell 25 per cent of their portfolios of GI home loans and certain other insured mortgages to the secondary market provided in the Federal National Mortgage Association,

if those loans cover construction meeting FHA standards, and (2) permits FHA to insure up to 95 per cent of loans for the nonprofit veteran cooperatives. (In the first instance, only 25 per cent of those loans held by banks or other lending institutions and qualified under FHA standards can be sold to FNMA to make room for more lending potential.)

In view of these developments, builders have been turning in increasing numbers to Title II of the National Housing Act of 1937. This permits 90 per cent loan insurance based on long-term economic value of the building. The "necessary current cost" formula of the former Title VI loan insurance has yielded to the long-term financing policy. Credit experts believe all this adds up to a new and tightening finance trend on the part of federal government. They believe the transition period so long talked of — from more liberal to less liberal credit in the home financing field — has arrived.

T-E-W Provisions Pending

Other points urged by the Joint Committee on Housing but smothered in the final hours of the session were those controversial features of the T-E-W bill: low-rent public housing and aid to cities

for reconstruction of blighted areas. In this connection there was promise from Senator Robert Taft of Ohio and Representative Jacob Javits of New York that these requests would be revived at the next congressional session.

Still other recommendations of the Joint Committee which will see further debate are farm housing as a comprehensive program, technical research studies by HHFA, and intensified government study of housing needs. These all were included in T-E-W, which had the general approval of the American Institute of Architects.

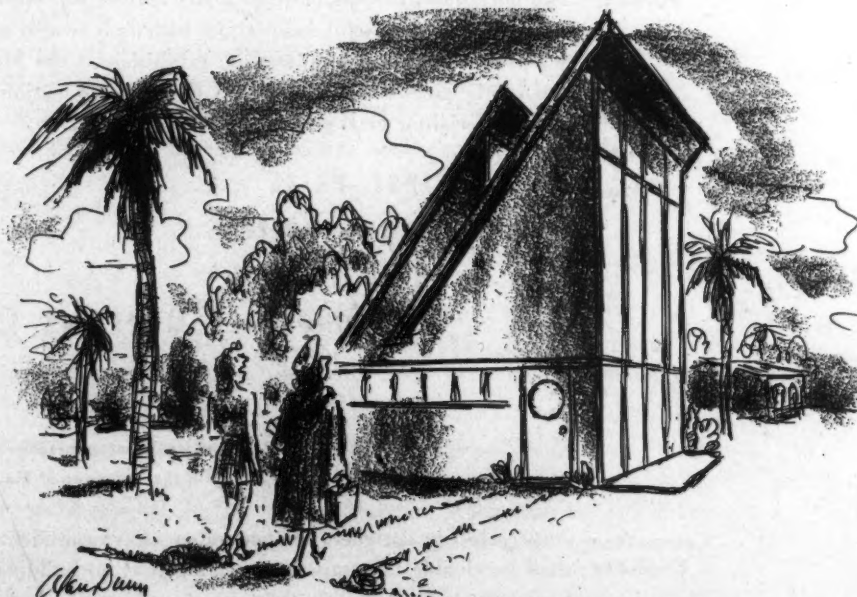
The point should be made here of a new tax provision in the bill as it came out of the House Banking and Currency Committee in a revised form. This provision was designed to give a tax incentive for rental housing. It accelerates amortization deductions. Deductions are "allowable over a period of 60 months and the deduction with respect to each month of such period shall be for 50 per cent of the cost of a facility divided by 60." This may be the forerunner of similar provisions to come in later legislation. The Joint Housing Committee in its report, it will be remembered, discussed tax incentives as a means of stimulus to building.

Housing Provisions Numerous

Despite the fact that no major housing bill was passed, the 80th Congress did push through a number of measures affecting housing. The record shows that it:

1. Continued rent controls to March 31, 1949, approving the voluntary 15 per cent rent increases.

(Continued on page 10)



"I had no idea how far south I really was until I ordered that solar roof —"

— Drawn for the RECORD by Alan Dunn

HIDDEN TALENT COMPETITION

THE MUSEUM OF MODERN ART
ARCHITECTURAL RECORD

**Professional
Advisers**

PHILIP C. JOHNSON, Consultant
to the Department of Architecture
The Museum of Modern Art

KENNETH K. STOWELL, A.I.A.
Editor-in-Chief
Architectural Record

Purpose The purpose of the competition is to discover and encourage latent architectural talent by rewarding the successful competitors with cash awards and both local and national publicity. Winning designs will be placed on exhibition at the Museum of Modern Art in New York and will be given national publicity through publication in the *Architectural Record*. In addition, material for local publicity will be provided.

Prizes	FIRST PRIZE	\$1,000.00
	SECOND PRIZE	750.00
	THIRD PRIZE	500.00
	TEN HONORABLE MENTIONS \$50 each	500.00
	TOTAL	\$2,750.00

TEN PRIZES each consisting of a three-year subscription to the *Architectural Record* and a year's membership in the Museum of Modern Art.

Competitor Eligibility Any architect, designer, draftsman, engineer or student residing in the continental U.S.A. shall be eligible to compete, providing that no building or architectural design of his shall have been published with his name as architect or designer, in any national magazine.

Since the object of the competition is to uncover individual talent, the design submitted must be the work of a single person, *not* of collaborators or a group.

Name
(Please Print)

Street Address

City Zone State

My suggestions for members of the jury are:

In submitting a design for this competition, I agree to abide by all of the conditions set forth in the Competition Program.

Signed _____

ENTRY BLANK

Design Problem The problem is the design of a memorial community center for a town in the Middle West.

Basis of Award The program calls for a public building — that is, one which will arouse civic pride as well as serve its particular function. The Jury will, therefore, pay special attention to the aesthetic aspects: character, proportion, scale, spatial arrangement and use of material.

Jury of Award The Jury shall consist of five recognized architects chosen by the Museum of Modern Art and the *Architectural Record*, whose names shall be announced on the first day of the judging.

Suggestions for Jury (Optional) Each competitor may submit the names of five architects whom he would like to have selected as members of the Jury.

Dates The Program will be issued September 6, 1948.

The Competition will close 5 P.M. Eastern Standard Time, November 8, 1948, and all drawings must be delivered, or postmarked by the Post Office before that time. Drawings must be addressed to HIDDEN TALENT COMPETITION, The Museum of Modern Art, 11 West 53rd Street, New York 19, New York.

Judging will commence on December 3, 1948, at the Museum of Modern Art.

Exhibition and Publication The winning and other selected designs will be exhibited at the Museum of Modern Art in February, 1949. Winning designs will be published in the *Architectural Record*.

Entry Blanks The entry blank signifies merely the intention to compete, and does not constitute an obligation to submit drawings. Entry blank must be sent promptly to Professional Advisers, HIDDEN TALENT COMPETITION, c/o *Architectural Record*, 119 West 40th Street, New York 18, New York. Cut out and send the entry blank printed above.

THE RECORD REPORTS

(Continued from page 7)

2. Lifted all remaining restrictions from the building of amusement and recreation structures.

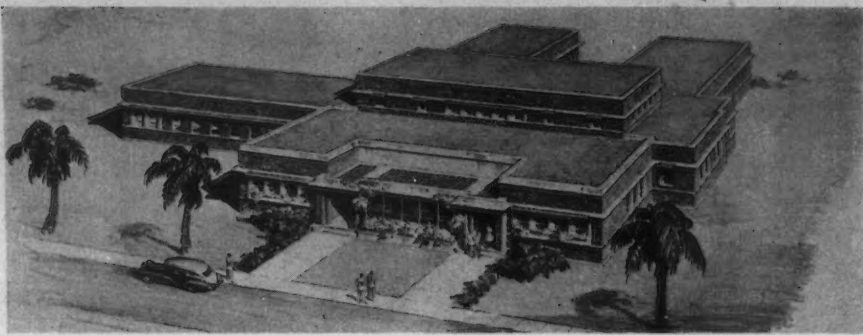
3. Extended Title VI mortgage insurance through April 30, 1948, after a previous extension to March 31, 1948, and provided insured financing to prefabricators.

4. Extended lending powers of Reconstruction Finance Corporation.

5. Amended the U. S. Housing Act of 1937 to allow Public Housing Administration to raise limits on cost of public housing. This permitted an increase wherever local bodies were willing to assume the difference on their own.

6. Authorized Veterans Administration to make grants up to \$10,000 or half the house cost, whichever is less, to paralyzed veterans who need specially designed homes. VA says around 1800 will be eligible for such assistance. Plans

(Continued on page 12)



International Petroleum Co. clinic at Talara, Peru. Crow, Lewis and Wick, Architects

CLINIC IN PERU

Under construction in Talara, Peru, is a new clinic for the International Petroleum Co., Ltd., an affiliate of Imperial Oil, Ltd. Large enough to serve the entire 15,000 population of the town, the building was designed by Crow, Lewis and Wick, Architects, of New York.

One of the most interesting of the construction details is the use of tubular steel roof trusses made from salvaged oil well piping. All woodwork in the

block-long brick, wood and concrete structure is by Nuroco Woodwork, and has been termite-protected by a new Monsanto impregnation process.

The building is planned for easy central control. Radiating from the high-ceilinged clerestory-lighted waiting room are three specialized wings: medical, surgical, and obstetrical. A smaller area for eye, nose and throat is provided behind the waiting room. Low-roofed streetside wings house records and staff.

NEWS FROM CANADA By John Caulfield Smith

A Billion This Year?

There seems little doubt that construction will set an all-time record value in 1948. Guestimates range anywhere from three quarters of a billion to a billion dollars. Contracts awarded for the first five months of this year total \$350 million, according to the authoritative MacLean Building Reports, dwarfing the same period last year by 38 per cent. House building, up 139 per

cent, leads the field, followed at a highly respectful distance by engineering construction, up 31 per cent, and commercial and institutional building, up 10 per cent.

The only category to show a decrease is industrial building, down 20 per cent. Part of the explanation may be found in a recent report tabled in the House of Commons, Ottawa. It discloses that "under existing conditions, when the

rate of capital development is straining Canada's manpower and material resources, it is undesirable that funds required for the financing of capital expenditures should be obtained through an expansion of bank credit." To some extent this warning undoubtedly has put a brake on additions to our factory inventory.

Operation Married Quarters

Hon. Brooke Claxton, Minister of National Defense, has announced a \$20 million housing program for married members of Canada's Armed Forces. It calls for erection of nearly 2500 dwellings, chiefly in remote areas, during 1948. They are to have from four to six rooms, cost from \$6500 to \$8000, and be allocated on the basis of family need. Exactly the same standard of accommodation is to be provided for the Army private as for his superior officers, and rents will be established on the normal quarters allowance according to rank.

Canadian Commercial Corporation, a Dominion Government agency, will let the contracts and manage the projects. Some prefabrication will be employed.

Nail Speculator Fined

A North York lumber dealer has been fined \$3000 and costs by a Toronto magistrate for selling nails at "an unreasonable and unjust price." He is be-

(Continued on page 158)



Full-sized model subway station concourse built by the Toronto Transportation Commission for experimental purposes. Walls of street entrance are glass-faced block, those of concourse are terrazzo with floor to match. Fluorescent lighting is concealed in acoustic tile ceiling. Stainless steel trim. Construction of the subway system is approved in part

DOUBLE DUTY INSULITE

(BILDRITE SHEATHING)



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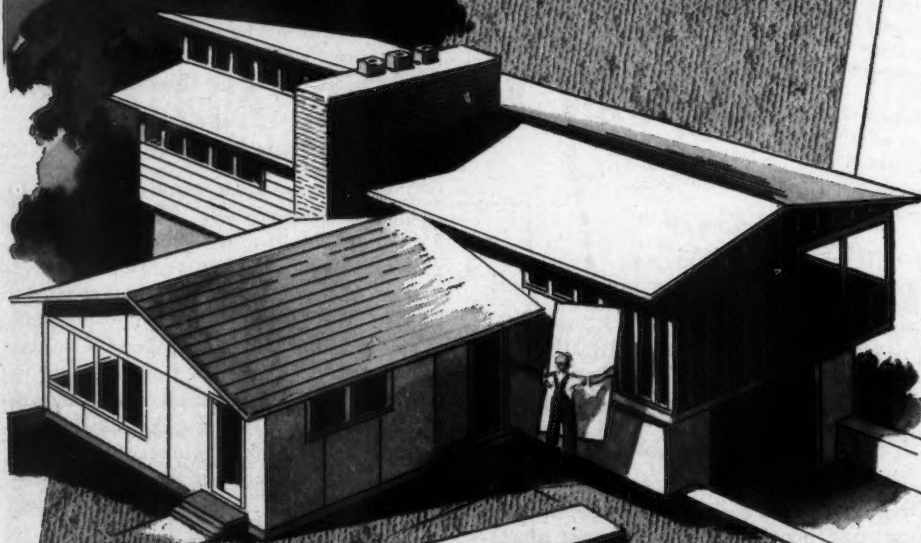
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TWO services at one cost.

Remember that fact because it's exactly the kind of fact your clients will remember . . . and appreciate . . . and give you credit for.

Double-duty INSULITE (Bildrite) SHEATHING not only encloses a house but it provides insulation at the same time . . . for no more cost. That's double for your clients' money . . . and they like it. Specify double-duty Insulite.

Refer to Sweet's File,
Architectural Section 10a/9



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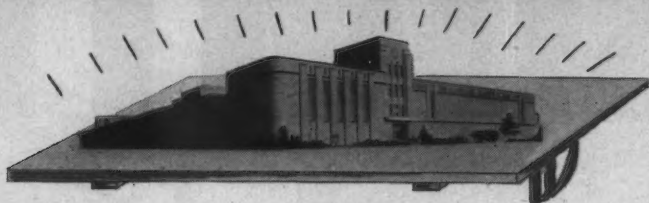
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TO THE **ENGINEER** ...WITH AN INDUSTRIAL PLANT ON HIS DRAWING BOARD



HERE'S AN IDEA... For **STRAIGHT-LINE** **PRODUCTION LAYOUT**

Early in 1940, when we were considering the construction of our new factory building, we were confronted with the problem of vibration from presses located on the first floor of a four-story building at the old plant which was interfering with grinding equipment as high up as the fourth floor, where the tool room was located.

Our plan for the new factory building was to have, as near as possible, a straight-line flow of production from the raw material to the finished product. This necessitated the placement of some of our presses in close proximity to various precision machines.

During the year of 1940, a test was made by placing presses on Korfund Isolators in the four-story building to study the effect on nearby equipment, and the results were found to be very satisfactory—so satisfactory indeed, that orders were placed for furnishing all of our press equipment with Isolators. Therefore, in 1942, when our plant was moved to the new building, our equipment was 100% isolated.

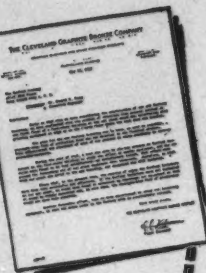
Since 1942, to the present time, the results of using the Korfund Isolators have been very successful and effective. If the Korfund Isolators were not installed in our new plant, we would have found it necessary to rearrange our equipment so that it would be widely separated and, in that case, the straight-line flow of production would not have been possible.

Another favorable effect that we have experienced in using the isolating equipment, is that the noise level in the factory area is considerably reduced.

Very truly yours,

THE CLEVELAND GRAPHITE BRONZE COMPANY
(Signed) L. E. Wilson, Plant Engineer

May 18, 1948



Korfund Vibration Control for over 200 presses made possible Straight-Line production - and Cleveland Graphite Bronze Co. received Cleveland's Chamber of Commerce award as "The finest large industrial plant constructed in Cuyahoga County in 1941-42."



KORFUND VIBRATION CONDITIONING reduces building damage, machinery maintenance costs, work spoilage, and provides the more quiet atmosphere that increases employee efficiency.

And—in schools, hospitals, stores, multiple-housing units—wherever air conditioning or other machinery can transmit vibration and create a noise nuisance—Korfund mountings enable you to plan installations at the most practical location for efficient operation. Just send the coupon today for the New Korfund Specification Sheet.



THE KORFUND COMPANY, INC.

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Please send me, without obligation, the 1948 Korfund Specification Sheet, describing Korfund Vibration Control Equipment—rubber, cork, and steel spring mountings—with Selector Chart for applications.

Name _____
Company _____
Address _____ City _____ State _____

THE RECORD REPORTS

(Continued from page 10)

and specifications worked out largely by the A.I.A. will be offered the qualifying veterans free of charge by VA.

7. Authorized federal housing agencies to exercise war housing powers under the Lanham Act to provide temporary housing for veterans, service men and their families who are under eviction notices and other prescribed hardships. This law converted barracks and other war-built structures into temporary housing.

8. Permitted savings and loan associations to loan home owners up to \$1500 each for property alterations, repair or improvement, such loans being insured under FHA Title I.

9. Made disaster loans available to flood-ravaged areas both for housing and for restoration of damaged public utilities.

10. Raised the ceiling for RFC purchases of GI and combination home mortgages meeting FHA standards of construction from \$250 million to \$840 million.

11. Offered war housing to colleges and universities, title free, that was war-built and now is being used by them. The learning institutions have until late in October to apply for this housing under Public Law 796.

Housing Costs Hit

Congressional attention was called to high housing costs in a last-minute report of the House Committee on Expenditures in Executive Departments. The Committee had investigated the Viers Mill Village veterans' housing project in suburban Montgomery County, Maryland. It urged a tightening up of the compliance and inspection program of the Federal Housing Administration and the Veterans Administration to protect veterans against inferior or substandard value in government-guaranteed projects.

"We feel that the testimony in this instance justifies our conclusion that a more effective system of progress inspection is justified by the government-guaranteed mortgage," said the Committee report. "We feel certain also that the Veterans Administration has ample power to protect veterans after the formal conveyance of the property. This protection should extend to requiring replacement or correction of inferior workmanship and faulty materials."

Defense Controls Get OK

Much to the surprise of everyone, buried in the military draft bill, which Congress put through just before it ad-

(Continued on page 14)

NOW — lower priced than ever before!



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CALL TODAY
get price and design data

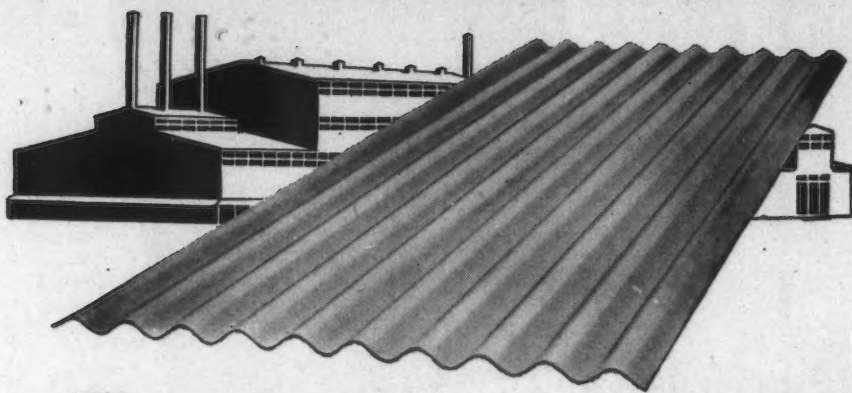
Alcoa Economy Castings can be produced promptly. For complete information on prices and design specifications, ask for the booklet, *Alcoa Economy Castings*. Call your nearby Alcoa Sales Office or write ALUMINUM COMPANY OF AMERICA, 1867 Gulf Building, Pittsburgh 19, Pennsylvania.

Now you can improve appearance and *reduce construction costs* by using high-quality Alcoa cast spandrels and wall panels. By co-ordinating design specifications and production facilities to permit maximum economy, Alcoa now can offer cast aluminum spandrels and wall panels at lower prices than ever before. Add to the advantage of low price, the economies of aluminum's light weight, corrosion resistance and easier handling and you'll see how Alcoa Economy Castings can help you solve the problems of construction time and costs.

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Asbestos-Cement Corrugated Roofing & Siding

—the lifetime roofing and siding that's fireproof and corrosion-proof. Asbestone can't be damaged by weather, rats, or termites. No painting. No upkeep.

Here are a few of the
 many prominent users:

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We are concentrating on production of this single industrial product. Stocks are now ample to make some immediate shipments. Free Engineering Service, available on request, shows how Asbestone can be adapted to your needs.

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Specialists in Asbestos-Cement Building

Products for over 25 Years

THE RECORD REPORTS

(Continued from page 12)

journing, was authority for controls to carry out defense contracts. This was expected to come along in due time, but slowly. (See the June issue of ARCHITECTURAL RECORD.) Instead, the Armed Services got the power before they expected it or needed it or even, perhaps, wanted it, and in fuller measure. Many times they had told committees that at some point they might have to ask for power to command defense work that mere money might fail to buy. But they did not count on getting it so promptly and completely.

When Washington and the rest of the country woke up to the fact that the Armed Forces had a clear-cut priority, subject only to the issuance of regulations by the President, officials did not go into immediate huddles on how, when and where to use it. The realization came during the Republican convention, which was a week when no work whatever was done in official Washington except by those who in one way or another could chalk up watching a television or listening to a radio set as work.

Meanwhile there were scheduled meetings of the various industry groups to allocate steel voluntarily to this or that industry. With Army and Navy priorities looming, the people at these meetings fooled around, conjectured, and agreed to hand-outs announcing progress.

May Affect Building

However it was to work out — whether the Armed Services were to ignore utterly or use to the hilt their new powers — the bare fact of Army buying was expected to tighten supply sources for the building industries. Immediately, of course, the Services are not in the market for great quantities of basic materials. They are still at the stage of drawing up contracts and, even a further step removed, of planning such contracts. But there is a lot of evidence in the national capital that companies that look for Army or Navy business are themselves going ahead preparing for the business that is to come. So far this has not been reflected in the raw materials inventories reported belatedly each month by the Commerce Department.

As for use of the priorities, the Army may exercise its new powers merely to silently threaten, as though saying to its reluctant suppliers: "We take it for granted that you want this business, which you'll have to accept anyway." It could work out into a triple play — Defense, Commerce, Industry — in which the fact of power is used to induce volun-

(Continued on page 16)



**"TO BE PREPARED FOR WAR IS ONE OF THE MOST
EFFECTIVE MEANS OF PRESERVING PEACE . . ."**

GEORGE WASHINGTON. 1790

The 4700 members of The Associated General Contractors of America have been asked to bring their construction "know-how" into the War Department's Affiliation Program — called by the Army "a vital phase of national defense." The A.G.C.'s place in the program is to help organize construction-trained reserve units in which each man is fitted to his military assignment by his daily work in the construction industry.

One hundred construction reserve units were voluntarily pledged by A. G. C. chapters and branches throughout the country to form "the backbone of the engineer program", as so designated by Lt. Gen. R.A. Wheeler, Chief of Engineers. Thus, already-trained troops will be ready for immediate mobilization in any national emergency.

Eighty-four of these reserve units have so far been sponsored by A. G. C. chapters since September 30, 1947, when the Affiliation Program was unanimously endorsed by the membership. With the cooperation of related construction groups — labor, architects, engineers, equipment dealers, municipal officials and others — the units are now being placed in operation for training activities. The program is 84 per cent complete.

Upon reviewing the recent progress report submitted to him, Secretary of the Army Kenneth C. Royall said that "the spirit and manner in which the Association has undertaken this effort to strengthen our national security offers a worthy example to other groups participating in the program." The preparedness program is additional patriotic service, as so clearly indicated in the fast and efficient \$49,000,000,000 construction miracle of the industry in World War II.

The members of The Associated General Contractors are privileged to contribute their **SKILL, INTEGRITY, and RESPONSIBILITY**, constantly exercised in their day-by-day work, to the furtherance of our country's vital defense program. In peace and in war, the construction industry serves the nation.

Copies of A. G. C.'s detailed "Progress Report on Affiliated Construction Units to the Department of the Army" are available upon request.



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Freshness...

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In dairies and processing plants... on railroad cars and trucks... at storage warehouses and locker plants all over America, you'll find Baker *controlled cold* at work—faithfully guarding foods in all their original freshness on their long trip from farms to city tables.

For Baker has a proud record of achievement in refrigeration and air conditioning. Over 40 years of experience has given its engineers the knowledge to plan truly "zone-balanced" plant systems—with perfect co-ordination between all units.

And from Baker's modern factories in Omaha, Neb., and South Windham, Me., come one of the world's finest lines of equipment—complete for both Freon and Ammonia—precision built for long life and low-cost operation.

Let Baker experts help you solve your air conditioning and refrigeration problems. For address of your nearest Baker Engineer or Distributor, write: Baker Ice Machine Co., Inc., South Windham, Me.

Photograph by Bradford Washburn



A-1

BAKER

Zone balanced • Engineered



**AIR CONDITIONING
AND REFRIGERATION**

FACTORIES AT OMAHA, NEB. AND SOUTH WINDHAM, ME. • • HEADQUARTERS: SOUTH WINDHAM, ME.

THE RECORD REPORTS

(Continued from page 14)

tary agreements giving the Army everything it needs. Commerce Department men have been preparing sales talks along that line. The great advantage of doing it that way is that it saves the Defense Establishment from meeting old wartime attacks of seeking a military dictatorship, of wanting to order industry around, etc. During the war, the Army preferred not to use direct requisitioning power. It preferred to have a civilian agency handling the industrial end. Moreover, this is part of a long Armed Service tradition.

Voluntary Program to End

But the voluntary allocation scheme ends next February. Ironically, Commerce Department, which first took hold of the plan in an attitude of resignation, asked Congress to renew but found Congress too busy. With the plan coming to an end early in the next term, there is no clear reason for supposing that either the defense chiefs or industry will be fully confident of it. In that case, the Army would be likely to just go ahead, ordering the regular way but letting everyone know it can do more. Also, the Army wants and has new statutory power to renegotiate various buying contracts. Requisition and allocating powers might be used to win acceptance of contracts subject to post-delivery bargaining.

The new powers became law at about the time the voluntary agreements unit of the Commerce Department announced a proposed allocation, with approval of the Steel Products Advisory Committee, of 58,000 tons of steel for producing all-steel prefabricated houses and 21,000 tons for flue-connected floor and wall furnaces. The steel would be made available during the rest of this year and the first two months of 1949.

Some Steel Allocated

The Steel Products Advisory Committee, which previously had disapproved the prefabricated housing program because of its heavy demand on steel, stated that, in view of advice from Congressional and administrative sources that the steel housing program is essential, it had agreed on the allocation, "provided that none of the tonnage is to be used for fixtures and appliances."

Architects' Cause Urged

Use of government rather than private architects in the erection of veterans' hospitals became an issue as Veterans Administration appropriations made their way through Congress in May and June. Members of the American Insti-

(Continued on page 18)

6 common conditions

where

***WOLMANIZED**

PRESSURE TREATED

LUMBER

protects against

**DECAY and
TERMITES**



1. Ground moisture and rain held in joints etc., of outdoor structures.



2. Wood used in or near the ground open to attack by termites.



3. Wherever moisture is condensed because of concrete or masonry.



4. Where steam and vapor from industrial processes are prevalent.



5. Walls, floors, ceilings subject to condensation from refrigeration.



6. Wood exposed to moisture in artificially humidified buildings.

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This lumber is pressure-treated with salts that are toxic to decay fungi and termites. Wolmanized lumber is clean, odorless, paintable and non-corrosive to metals.

Best of all, the extra cost of Wolmanized lumber is always less than the cost of labor alone in replacing failing, untreated wood.

For further information and copies of actual service records, write today to American Lumber & Treating Company.

Know more about this money-saving treated lumber. Complete information on Wolmanized lumber, including suggested specifications, is available in this new booklet.

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WE ELIMINATED THE LIMITATIONS IN DESIGNING BURT'S FREE-FLOW

In designing the original Burt Free-Flow Gravity Ventilator 13 years ago, Burt engineers reduced to a minimum the factors that limit the capacity of stationary ventilators. Constant research and improvement since have made this unit outstanding in its field today . . . Among Free-Flow advantages are upward vertical discharge for full velocity and to protect the roof from condensation—elimination of internal louvers—airflow direction cone to prevent turbulence in the head—and no moving parts to ever get out of order. For ease of erection, efficiency, long life and low maintenance expense, Burt Free-Flow Gravity Ventilators are first choice for many installations.

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THE RECORD REPORTS

(Continued from page 16)

tute of Architects appeared before the House Appropriations Committee, stressing VA plans to expand its architectural staff and design the remainder—some 14—of the 90 hospitals within its own staff.

The A.I.A. protested the intention "to usurp the prerogatives of the professional man and to intrude into the field of private enterprise." It advocated "without reservation the engagement of professional service, drawn from private practice, for the rendering of such professional service on all federal work."

Veterans Administration Gray, questioned by the Committee as to whether he used his architectural staff for new buildings, replied in the affirmative. "We design one building," he said, "and get plans and specifications for that building, and build, perhaps, five hospitals and save the cost of plans and specifications for each individual building."

In the course of the discussion, the status of the new hospital program came to light. Construction contracts have been awarded for 26 hospitals, preliminary plans have been made or are in preparation for 15, preliminary plans have been completed on 47, and two are under advertisement for construction contracts. (The testimony was given late in May.)

The following statement was presented of projects to be advertised this summer:

In June: Denver, Colo.; Brecksville, Ohio; Norman, Okla.; and Seattle, Wash.

In July: San Diego, Calif.; Greenville, S. C.; Detroit, Mich.; Miles City, Mont.; and Bonham, Texas.

In August: Ann Arbor, Mich.; Harrisburg, Pa.; Tupelo, Miss.; Louisville, Ky.; El Paso, Texas; and Houston, Texas.

Hospital Program Pushed

The U. S. Public Health Service proudly points to impressive totals beginning to roll up under the Hill-Burton Act covering its hospital erection program. In the first six months of 1948, which coincide with the first six months of the program in its active stages, the total of projects in 42 states was lifted to 347. Construction in progress as the second half of 1948 began will add 11,846 general beds to the nation's facilities. This much of the five-year undertaking is costing \$160,734,258. Federal sources pay one-third of the hospital construction cost, states or local sponsors two-thirds.

Public Health Service architects have

(Continued on page 20)

the new *Guthlite*^{*} is



WAYS More Economical!

1



Economical to Install

The ballast-free channels are hung first—either on the ceiling or suspended—singly or in continuous rows. Then follows simple, straight-through, unobstructed wiring. Finally, the complete reflector unit, which includes louvres, ballast, and all accessories, is put up in one simple, book-on operation from the floor. No need to carry heavy loads up shaky ladders. This simplified installation saves time, effort, and cost.

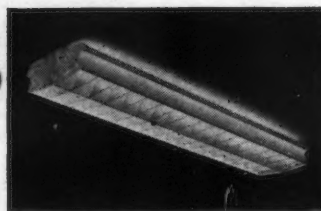
2



Economical to Maintain

A revolutionary new maintenance principle has been introduced in the GUTHLITE! No more ladders! No more fuss, muss, or bustle! The entire maintenance operation—lamp replacements, starter changes, cleaning—everything—is easily, speedily handled—right from the floor—thanks to the patented Jackknife Hinge! The handy maintenance rod makes possible these tremendous savings in time, labor, and inconvenience.

3



Economical to Use

A GUTHLITE installation means triple economy in use. First, because there are no horizontal light-reflecting surfaces to gather dust, light output retains maximum efficiency. Second, because GUTHLITE is so easy to maintain, the lighting efficiency is held at consistently high levels. And third, because of their easy seeing, direct-indirect illumination, GUTHLITE adds to the productive work of the people using the light! A real three-way economy in use.



^{*}Trade Mark. U. S. & Canadian Patents Applied for

Write for full details about GUTHLITE. Ask for Bulletin 4445D



When bathroom floor space is at a premium...

The FIAT BUILT-IN *Cadet* Model 19-B solves the problem easily because when completely recessed it takes up no bathroom floor space at all.

Not only is the Built-In Cadet a champion shower for remodeling where bathrooms are created out of the small space afforded by closets and odd corners, but in new construction it presents stimulating possibilities in bathroom layouts and design particularly interesting to the architect and builder.

The cabinet can be completely recessed or partly set out to line up with lavatory or other fixtures as illustrated. The exclusive Fiat escutcheon type door frame conceals the joint between wall and cabinet stiles providing a clean cut appearance that gives a new look to bathrooms.

In addition, the Built-In Cadet incorporates some of the newest improvements in shower cabinet construction such as the elimination of all exposed screw heads and loose joining seams that collect dirt. The smooth, clean, interior is a distinct advance in shower cabinet construction that owner users will appreciate.

The Zephyr glass door is recommended for Built-In Cadet installations because it adds so much to the appearance and utility of the shower at so little added cost. Owners often refer to the Built-In Cadet as the "glass shower" because the glass door is the only part exposed in the bathroom.

Size 36" x 36" x 80", receptor precast terrazzo with cast-in drain. Walls, bonderized, galvanized steel, finished with white baked-on synthetic enamel. Zephyr or Dolphin glass door, or shower curtain can be installed on the Built-In Cadet.



Metal Manufacturing Company

Chicago 13, Illinois

Long Island City 1, New York

Los Angeles 33, California

IN CANADA—Fiat showers are made by Porcelain and Metal Products, Ltd., Orillia, Ontario

THE RECORD REPORTS

(Continued from page 18)

found it necessary to prepare plans and cost estimates for smaller hospitals — down to 25-bed capacity (see ARCHITECTURAL RECORD, June, 1948, p. 92). When the program first was outlined, it was felt nothing smaller than 50-bed buildings would be constructed. This opinion was based on a doubt many of the communities needing hospitals could raise their own funds, the two-thirds share of the building cost. Present trends now indicate, however, that many remote areas are raising needed money for participating in the federal program. Particularly is this true in the southern states where the need has been felt to be greatest. U. S. Public Health is convinced many of the very small hospitals will be built.

An early survey has disclosed that 1,361,895 hospital beds are needed in 44 states which have approved plans.

Synthetic Oil Plans Progress

Another sizeable construction program, in much earlier stages of development, is being inaugurated by the Army Corps of Engineers for the Department of the Interior. This involves the synthetic oil producing plans.

The world demand for petroleum and its products prophesies highly specialized fields of activity for American architects and the rush of science toward perfection of oil producing processes spells new activity for the drawing boards. Washington is feeling its way forward in this relatively new enterprise.

A few weeks ago Army Engineers said they had contracted with Ford, Bacon and Davis, New York consulting engineers, for a survey of information. This step looks toward the future construction of synthetic fuel production centers, nationwide.

Under the present contract the Army Corps is spending \$110,000 to find out facts in parts of three states — western Kentucky, northwestern Colorado, and southeastern Texas. It wants to know more about the availability of raw materials, water supply, power, transportation, labor, housing and markets in those regions. Later, the investigations will be extended to other parts of the country. The information now sought is needed as groundwork for the planning of synthetic oil manufacturing plants. The Bureau of Mines will select manufacturing processes and say what plant requirements will be.

The birth of an industry — that is what Interior Secretary Julius A. Krug calls it. Dedicating the synthetic fuels

(Continued on page 22)

BUSH HEAT TRANSFER PRODUCTS

The "STOCK UNIT" answer to every need!

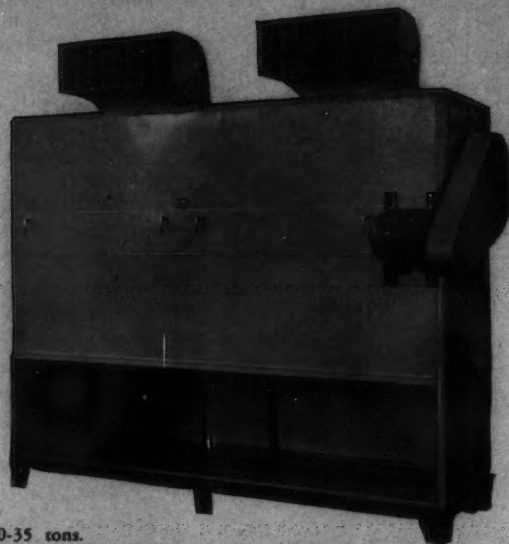
BUSH WATER, STEAM AND DX COILS are supplied in standardized and matched sizes and singly or in combination can be arranged to fit practically any installation. Top materials. Conservatively rated.

BUSH HEAVY DUTY COOLERS, floor and ceiling type, are designed for easy installation and service . . . fill practically every refrigeration or air conditioning need. Expert engineering and workmanship.



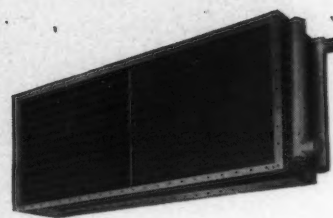
CEILING TYPE UNIT —

Air Conditioning: 5-25 tons.
Product Cooling: 24,000-48,000 BTU/HR. at 10° TD above 32°. The last word in efficient design and operation.



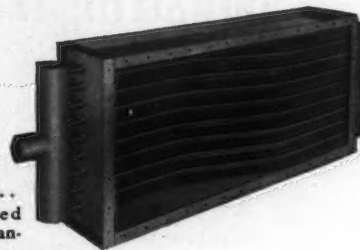
FLOOR TYPE UNIT —

Air conditioning: 10-35 tons.
Product Cooling: 24,000-96,000 BTU/HR. at 10° TD above 32°. 24,000-90,000 BTU/HR. at 10° TD below 32°. Built in two sections for quick, easy installation.



WATER COILS . . .

Aluminum fins on tinned copper tubes . . . mechanically expanded fin-to-tube bond . . . turbulence-creating finger spacers.



STEAM COILS . . .

O-GEE curved tubes for expansion stresses . . . large tubular headers . . . standard BUSH materials and workmanship.



DX COILS . . .

Low pressure drop circuiting . . . pressure-type refrigerant distributors . . . sound, conservative ratings . . . reinforcing tiebars for high structural strength.



Write TODAY for the new BUSH Catalogs illustrating and describing Water, Steam and DX Coils and Heavy Duty Coolers . . . each containing complete engineering data to help you plan and specify. Address DEPT. C5.

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Bowstring Trusses *by*



RIVETING in truss fabrication means positive security and above all simplicity in the finer phases of steel construction.

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THE Mesker Bowstring Truss design eliminates columns. Greater floor space and the resulting finer appearances are but another feature of Mesker design. Mesker in truss fabrication, means safety, means better and standardized construction.

Mesker Steel prefabricated products are superior in every field — a true fact you expect from one of the oldest fabricators in the country.

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AND FREE
DESIGN
INFORMATION



THE RECORD REPORTS

(Continued from page 20)

laboratory and pilot plants at Bruceton, Pa., he let it be known that enough data now are available to permit an immediate start on design efforts for the construction of initial commercial plants.

Earlier this year Secretary Krug recommended to Congress the appropriation of \$400 million for the construction of several pilot plants of commercial proportions. Capacity of each would be 30,000 barrels of oil production each day, or less. From such plants, said Mr. Krug, could be developed "the great new industry that I envision will make the U. S. self-sufficient in liquid fuels production." Congress may get around to these appropriations next year.

The government experts are agreed that these plants should be designed, built and operated by private enterprise. Evidently the Army Engineers are satisfied, too, that private industry should survey potential location sites and determine local conditions.

Sawmills Behind Iron Curtain

A foreign development was the announcement by John J. McCloy, president of the World Bank, that loans are being contemplated to small countries behind the Iron Curtain for purchase of sawmill equipment to stimulate lumber production. The tentative plan to loan \$17 million to Poland, Yugoslavia and Czechoslovakia for sawmill operation and lumber output could mean more housing lumber in this country. The plan, as suggested once before, would increase forest products activity in those three countries, enabling them to ship to the Marshall Plan nations and largely satisfy demands there. This would relieve demands on American lumber producers. Mr. McCloy said the plan was being given further consideration at Geneva.

FHA Makes Report

FHA, concluding 14 years of service, advises that it has insured over \$12.5 billion of mortgage and property improvement loans, that the largest volume came in the last year (over \$2.7 billion), and that last year its income exceeded \$30 million after payment of all operating expenses.

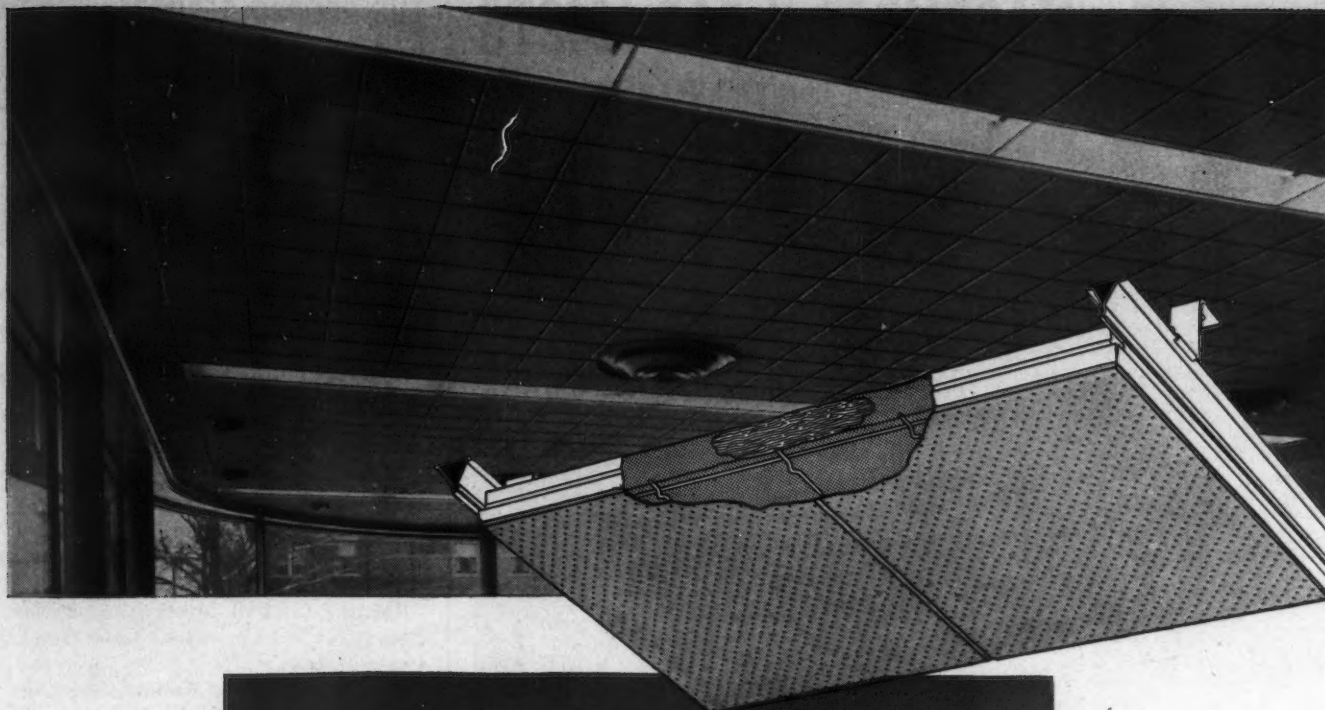


ON THE CALENDAR

Aug. 2-27: 2nd Annual Silversmithing Workshop Conference for Teachers, Rhode Island School of Design, Providence, R. I.

Aug. 4-8: 2nd Annual Pacific North-

(Continued on page 24)



Armstrong's Arrestone stops up to 85% of noise

Armstrong's Arrestone offers extra efficiency. Up to 85% of all noise striking an Arrestone ceiling is absorbed.

The attractive surface of Arrestone is a sturdy metal pan of 26-gauge steel. It is 12" x 24" in size and is perforated with 1105 holes per square foot. Inside the pan is a mineral wool sound-absorbing pad, wrapped in flameproof paper. A wire grid separates pad and pan, so the entire surface of the pad can absorb sound. This incombustible unit makes an attractive and unusually durable ceiling. Finished with two coats of baked-on enamel, it provides maximum light reflection without glare.

Armstrong's Arrestone is easy and economical to maintain. It can be washed with mild soap and water when necessary. Even repainting won't affect its unusually high acoustical efficiency.

Arrestone units have beveled edges. A bevel also divides the pan to give the appearance of two 12" square tiles. Units are firmly mounted on metal runners but can be removed and relocated. This flexibility permits easy installation of recessed lighting. Armstrong's Arrestone is installed by leading acoustical contractors throughout the country. For full information write Armstrong Cork Company, Acoustical Dept., 2408 Stevens Street, Lancaster, Pa.

Arrestone Sound-Absorption Coefficients at Various Frequencies

Thickness	Size	Coefficients at Cycles Tested						Noise Reduction Coefficient
		128	256	512	1024	2048	4096	
Including pad, metal facing, and furring; 2 1/2"	12" x 24"	.25	.56	.99	.99	.77	.60	.85



*TRAVERTONE IS A TRADE-MARK FOR WHICH REGISTRATION IS PENDING.

ARMSTRONG'S ACOUSTICAL MATERIALS

CUSHIONTONE® — TRAVERTONE* — ARRESTONE® — CORKOUSTIC®



MACOMBER V BAR JOISTS

A BETTER FLOOR FOR ENGINEER TO DESIGN,
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STANDARDIZED STEEL BUILDING PRODUCTS

THE RECORD REPORTS

(Continued from page 22)

west Arts and Crafts Fair, Bellevue, Wash.

Sept. 24-Oct. 2: Nation-wide Fall Home Fashions Festival, sponsored by National Retail Furniture Assn.

Sept. 27-Oct. 1: 3rd National Plastics Exposition, Grand Central Palace, New York City.

Oct. 1-29: "Tomorrow's World—Work, Play and Live," exhibition sponsored by the New York Chapter, A.I.A., New York Museum of Science and Industry, R.C.A. Bldg., Rockefeller Center, New York City.

Oct. 2-10: Construction Industries Exposition, Sam Houston Coliseum, Houston, Texas.

Oct. 13-15: Fall Meeting, American Society of Civil Engineers, Statler Hotel, Boston, Mass.

Oct. 13-16: 15th Annual Meeting, National Assn. of Housing Officials, and 3rd Annual Exhibit of Building and Maintenance Products, Olympic Hotel, Seattle, Wash.



Macy's-Flatbush, the Brooklyn branch of Macy's, New York, now being built

BUILDING NOTES

Suburban Store

Macy's-Flatbush, latest addition to the group of branch stores operated by Macy's, New York, is now well under construction. Designed by Voorhees, Walker, Foley and Smith, Architects, the new store will be an L-shaped structure of concrete and steel, three stories high, air conditioned throughout, and equipped with a device for electronically removing dust from the air. Lighting will be fluorescent. The plans closely follow those for Macy's earlier suburban stores in Parkchester and Jamaica as well as that now building in White Plains.

The interior color scheme will emphasize soft pastel tones, and merchandise will be displayed on rounded, "free-flow" fixtures. A special balcony will house reserve stocks to permit quick delivery to the selling floors.

(News continued on page 162)

THE CASE OF THE RIPPLE FIN

Here's one unfailing clue to guide you in the selection of unit heaters—look for the Ripple-Fin coil. Ripple-Fin is more than just a design feature, it's the engineered way to longer coil life—maximum heat transfer efficiency. Here's why.

In McQuay coil construction copper tubes are expanded by hydraulic pressure into plate-type aluminum fins, locked together for the lifetime of the coil. Security of the bond plus greater actual metal to metal contact between fin and tube means Ripple-Fin coils deliver more heat—faster. Rippled fin plates also make the coil core tough and vibration free. See the McQuay representative in your area now about these versatile unit heaters . . . in capacity ranges to match your requirements.

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CONSTRUCTION COST INDEXES — Labor and Materials

United States average 1926—1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data compiled by E. H. Boeckh & Associates, Inc.

NEW YORK

ATLANTA

Period	Residential		Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.		Steel	Residential		Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.		Steel
	Brick	Frame					Brick	Frame				
1920	136.1	136.9	123.3	123.6	122.6		122.8	122.9	108.6	109.8	105.7	
1925	121.5	122.8	111.4	113.3	110.3		86.4	85.0	88.6	92.5	83.4	
1930	127.0	126.7	124.1	128.0	123.6		82.1	80.9	84.5	86.1	83.6	
1935	93.8	91.3	104.7	108.5	105.5		72.3	67.9	84.0	87.1	85.1	
1939	123.5	122.4	130.7	133.4	130.1		86.3	83.1	95.1	97.4	94.7	
1940	126.3	125.1	132.2	135.1	131.4		91.0	89.0	96.9	98.5	97.5	
1941	134.5	135.1	135.1	137.2	134.5		97.5	96.1	99.9	101.4	100.8	
1942	139.1	140.7	137.9	139.3	137.1		102.8	102.5	104.4	104.9	105.1	
1943	142.5	144.5	140.2	141.7	139.0		109.2	109.8	108.5	108.1	108.7	
1944	153.1	154.3	149.6	152.6	149.6		123.2	124.5	117.3	117.2	118.2	
1945	160.5	161.7	156.3	158.0	155.4		132.1	133.9	123.2	122.8	123.3	
1946	181.8	182.4	177.2	179.0	174.8		148.1	149.2	136.8	136.4	135.1	
Feb. 1948	239.2	243.2	225.2	224.8	220.1		194.4	198.5	172.1	172.7	173.8	
Mar. 1948	244.8	246.4	233.9	237.0	229.9		194.6	198.7	172.4	172.9	174.0	
Apr. 1948	248.6	250.7	235.9	238.5	232.1		196.2	199.7	173.6	175.3	175.3	
May 1948	249.3	251.6	237.1	239.3	234.5		196.2	199.7	173.6	175.3	175.3	
% increase over 1939												
May 1948	101.9	105.6	81.4	79.4	80.2		127.3	140.3	82.5	80.0	85.1	

ST. LOUIS						SAN FRANCISCO					
Period	Brick	Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Steel	Period	Brick	Frame	Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings Brick and Concr.	Steel
1920	118.1	121.1	112.1	110.7	113.1	1920	108.8	107.5	115.2	115.1	122.1
1925	118.6	118.4	116.3	118.1	114.4	1925	91.0	86.5	99.5	102.1	98.0
1930	108.9	108.3	112.4	115.3	111.3	1930	90.8	86.8	100.4	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	1935	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	1939	105.6	99.3	117.4	121.9	116.5
1940	112.6	110.1	119.3	120.3	119.4	1940	106.4	101.2	116.3	120.1	115.5
1941	118.8	118.0	121.2	121.7	122.2	1941	116.3	112.9	120.5	123.4	124.3
1942	124.5	123.3	126.9	128.6	126.9	1942	123.6	120.1	127.5	129.3	130.8
1943	128.2	126.4	131.2	133.3	130.3	1943	131.3	127.7	133.2	136.6	136.3
1944	138.4	138.4	135.7	136.7	136.6	1944	139.4	137.1	139.4	142.0	142.4
1945	152.8	152.3	146.2	148.5	145.6	1945	146.2	144.3	144.5	146.8	147.9
1946	167.1	167.4	159.1	161.1	158.1	1946	159.7	157.5	157.9	159.3	160.0
Feb. 1948	221.4	224.8	199.4	202.3	200.4	Feb. 1948	213.8	211.5	201.6	208.9	203.9
Mar. 1948	223.6	227.5	200.2	202.9	201.3	Mar. 1948	214.0	211.7	201.9	209.1	204.1
Apr. 1948	223.8	227.5	200.6	203.0	201.5	Apr. 1948	214.9	212.7	202.7	209.5	204.4
May 1948	223.8	227.5	200.6	203.0	201.5	May 1948	214.9	212.7	202.8	209.6	204.6
% increase over 1939						% increase over 1939					
May 1948	103.1	112.6	69.0	69.5	69.3	May 1948	103.5	114.2	72.7	71.9	75.6

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926-29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).
Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.



On the main banking floor, above, the richness of the bronze and marble grille surmounting the long tellers' desk is enhanced by semi-indirect lighting reflected from ceiling of gold leaf.

Simple, massive handrails of extruded bronze add a note of elegance to the stairway from the building lobby to the banking floor.

Closeup of grille forming the tellers' windows in main banking room. The gate is also of bronze.

Bronze

**Provides the New Look...
preserves the old dignity**

RENOVATION of the Erie County Savings Bank in Buffalo, N. Y., presents an excellent example of the effectiveness of Anaconda Architectural Bronze in modernizing interiors without violating traditional atmosphere or time-honored prestige.

Architects for this project were Duane Lyman and Associates, Buffalo, N. Y. The general contractor was George W. Walker & Sons, Inc., of Buffalo. Both interior and exterior bronze work was executed by Superb Bronze & Iron Co. Inc., Brooklyn, N. Y.

Here, as in so many other banking institutions, public buildings, department stores and smart shops, both architect and fabricator confirm important advantages of Anaconda Architectural Bronze and Nickel Silver... ready workability, and uniformity in dimension, composition and finish.

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REQUIRED READING

A MASTER EXPLAINS

Search For Form: A Fundamental Approach To Art. By Eliel Saarinen. Reinhold Publishing Company (330 W. 42nd St., New York, N. Y.), 1948. 6 by 9½ in. xxi + 354 pp. illus. \$4.50.

When an architect of Eliel Saarinen's caliber and renown puts into words his innermost thoughts on the fundamentals of his art there can be no doubt as to the reception those words will receive. And when he does it in a book length analysis, tantalizingly titled *SEARCH FOR FORM*, the publication of that book is an event of major importance.

From the outset, this is an inspiring volume. Mr. Saarinen begins with an introductory account of his early childhood and life in his native country of Finland, and tells of the circumstances that placed him in the hands of architecture and art. In almost logic-lesson style, the Preamble discusses some of the basic fundamentals of form and leads the reader into the first of three brief "Analysis" chapters. "Introductory Analysis," in the words of Mr. Saarinen, "deals with form in general as to its origin, meaning, nature, import, and scope."

"Retrospective Analysis" is concerned with the post mediaeval or Renaissance problems, the general mental transition that came about at that time, and the influence it had on form transition in the same period.

"Prospective Analysis" brings the reader up to the present, discusses form development as related to the Machine Age, or The Machine Age and its Consequences, The World Catastrophe and its Consequences, from which the following quotation is taken: "We are merely seekers in the field of art. And in and through art we may be able to sense the strengths and weaknesses of man's endeavors. For as art, good or poor, expresses truly the conditions from which it springs, then art is indeed a reliable recorder of the vibration of life."

Form, which is the *raison d'être* of this book, is discussed in a series of chapters which define its relationships to truth, logic, function, color, decoration, space, theory, tradition, beauty, taste and imagination.

In the Epilogue, Mr. Saarinen has some interesting things to say about art education and the insidiousness of dogmatic teaching practices — "First, it must be borne in mind that the reproductive trend in art-development increasingly gained ground until ultimately the trend was so generally accepted as to make skillful reproduction the supreme virtue. Naturally, this trend became the leading thought in art education as well." The real message of the

book, however, is summed up in a statement made early and again in a final section — "Art form of man is something which is within man, which is strong when man is strong, and which declines when man declines." Art is thus well established as a sensitive barometer of the cultural level.

SEARCH FOR FORM should be on the "must" reading list of anyone whose interest in architecture, art and design is founded not merely on the surface elements, but rather, on their fundamentals, and on a desire to seek a richer experience and meaning from the arts, and an answer to some of the questions that will always arise whenever really creative work is being done.

ABOUT LE CORBUSIER

Le Corbusier. Edited by Stamo Papadakis with essays by Joseph Hudnut, S. Giedion, Fernand Leger, J. L. Sert, and James Thrall Soby. The Macmillan Company (60 5th Ave., New York 11, N. Y.), 1948. 8½ by 11½ in. 152 pp., illus. \$7.50.

Once again here is the familiar picture of Le Corbusier in a quadruple role — as architect, town planner, painter and writer. In a successful effort to give a real estimate of one of the most unusual minds in contemporary art, the editor of this book has included excellent contributed essays, which accompany each of the four main topic headings.

Under the first section which deals with Le Corbusier as an architect, there is a very fine article by Joseph Hudnut which contains the following noteworthy quotation: "The houses of Le Corbusier are beautiful essays in an art of abstractions, but they are important only as they state the problem of modern architecture in its relation to our society and the eager progress of our technologies. They tell us that modern structure enveloping a modern light may be capable of emotional content; the world had waited long for that message. . . ." An essay on color in architecture by Fernand Leger concludes the chapter.

The topic of Town-planner includes an article entitled "From Architecture to City Planning" by J. L. Sert, and also illustrations of some of Le Corbusier's most notable city planning schemes.

The development of Le Corbusier as a painter is traced from his early purist period to his later murals which were used as an integral part of many of his architectural designs. The text written by James Thrall Soby discusses Le Corbusier as a painter, and his collaboration with Jeanneret. This section contains many illustrations that eloquently point out Le Corbusier's grasp and preoccupation with the principles of line, color, mass, organic and abstract.

Under the topic heading of Writer, selections are given from Le Corbusier's pen. His books are usually interdependent on his projects, and as a writer he is thus an interpreter of his design principles.

LE CORBUSIER is recommended reading since it brings into clear focus the main facets of a contemporary personality and genius capable of brilliantly organizing four important allies — architecture, city planning, sculpture and painting.

AND BY LE CORBUSIER

New World of Space. By Le Corbusier. Reynal & Hitchcock (383 Madison Ave., New York 17, N. Y.), 1948. 8½ by 11 in. 128 pp. illus. \$6.00.

NEW WORLD OF SPACE is a unique kind of autobiography since it presents pictorially the works of the author's lifetime, and so, through the medium of his own architecture, paintings and words, Le Corbusier shows what has been his life — his work.

In retrospect of his accomplishments, the author evolves the theme that modern art and architecture are an exciting adventure in space, and a new conception of space.

Le Corbusier's works are handsomely presented and include many of his early villas, the Swiss dormitory building in Paris, the League of Nations project, some of his South American buildings and projects, city plans and many paintings.

NEW WORLD OF SPACE is an excellent autobiography and compilation of Le Corbusier's life's work, beliefs and principles of architecture and art, and a worth-while addition to his already numerous publications.

CITY PLANNING

THE OLD AND THE NEW

Oxford Replanned. By Thomas Sharp. The Architectural Press (9-13 Queen Anne's Gate, London S.W. 1, Eng.), 1948. 7 by 9¼ in. 224 pp. illus., maps, photos, diagrams. 15s.

In writing *OXFORD REPLANNED*, Thomas Sharp reveals himself not only as an experienced and wise town planner, but also as an artist of first rank. It is not enough for him that in replanning Oxford in order to preserve it care should be taken of the old, and room made for the new. To him, the great beauty of Oxford depends on many things other than just the superb and separate quality of the old buildings — rather, a surprise vista, a spire, a hidden quadrangle or a panorama.

In Mr. Sharp's plan all the necessary rehousing, rerouting, and replacing is carefully and adequately considered, and yet, with his intimate knowledge of the city, he advocates that as

(Continued on page 30)

colored

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Something new and dramatic in color engineering—

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Dravo *Counterflo* Heaters are available in sizes ranging from 400,000 to 2,000,000 BTU output. Equally efficient with oil or gas and with or without ductwork, they can be floor-installed, wall-hung or roof-hung. Write for Bulletin HV-516. Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pennsylvania.



According to Mr. Schulman, President of Sanatex Company, the Dravo *Counterflo* Heater "is the best equipment we ever had. Delivery of heat is virtually instantaneous when the unit goes into action—an important fuel-saving feature which eliminates the need for anticipating cold spells or keeping the heater in operation when the plant is closed."

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REQUIRED READING

(Continued from page 28)

much as possible, the subtleties brought about by time and accident be preserved, and believes that much of what Oxford is famous for depends on those things.

The actual design of the new buildings for the city is not shown in the book, but for building materials it is suggested that "... probably best of all, for the larger buildings at any rate, may be a covering of thin carefully finished slabs of concrete or reconstructed stone used as a 'skin' to cover raw constructional surfaces—a true modern counterpart of traditional ashlar.

"Along with this matter of a harmonious building material, the proper regulation of building heights is of first rate importance in the preservation of the city's character. Though it would clearly be wrong to stop the addition of new features to the famous sky-line, every building which it is proposed to raise above the general level will need to be considered with the closest scrutiny for unexpected effects.

"Certainly nothing lumpish should be added to the delicate interplay of spire and tower and dome."

Some indication of Mr. Sharp's preference for designs to be used can be detected when he advises that perhaps through collaboration of the best architectural minds, and the disqualifying of any eclectic sort of approach, the 20th century might make its own real contribution to Oxford.

Included in the book are many maps, drawings, photographs, tables and diagrams which are pertinent and necessary to the factual side of the problem.

OXFORD REPLANNED is an expert report on a very ticklish problem—that of re-planning a city to include all the facilities needed in a modern city, plus the taste, imagination and scholarship required to preserve the architectural composition and treasures that are already there.

PHILADELPHIA HOUSING

Urban Home Ownership: A Socio-Economic Analysis With Emphasis On Philadelphia. By Henry McCulley Miller. College Offset Press (148-150 N. 6th St., Philadelphia 6, Pa.), 1947. 6¼ by 9½ in. xx + 162 pp. tables, statistics, graphs.

The first part of this book is a study of urban home ownership on a national basis. It begins its fact finding with the year 1890 and continues into the present. There is a discussion of home ownership by cities, from a regional aspect, and a chapter entitled "The Pros and Cons of Home Ownership." The question of home ownership is also discussed in

(Continued on page 204)



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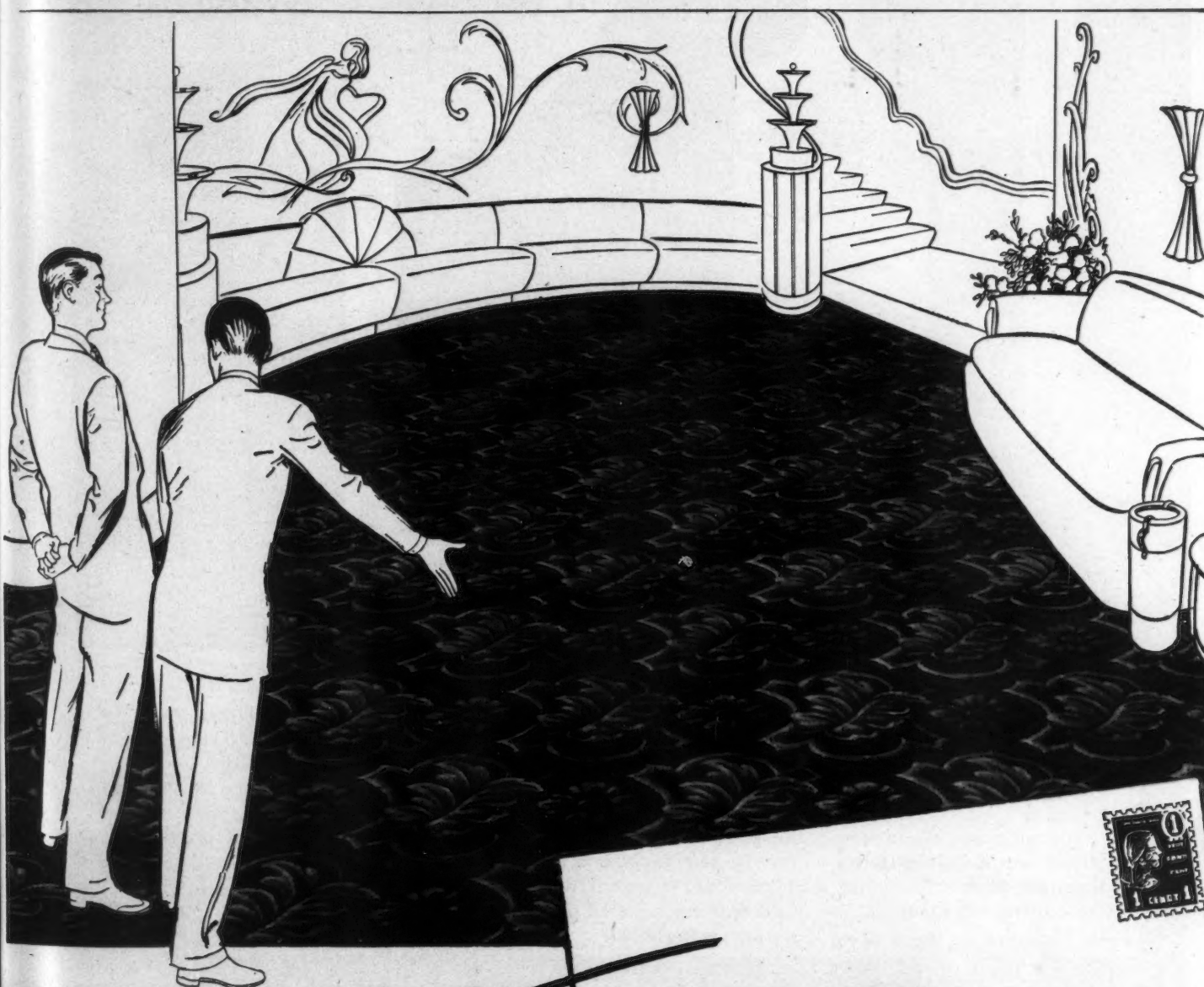


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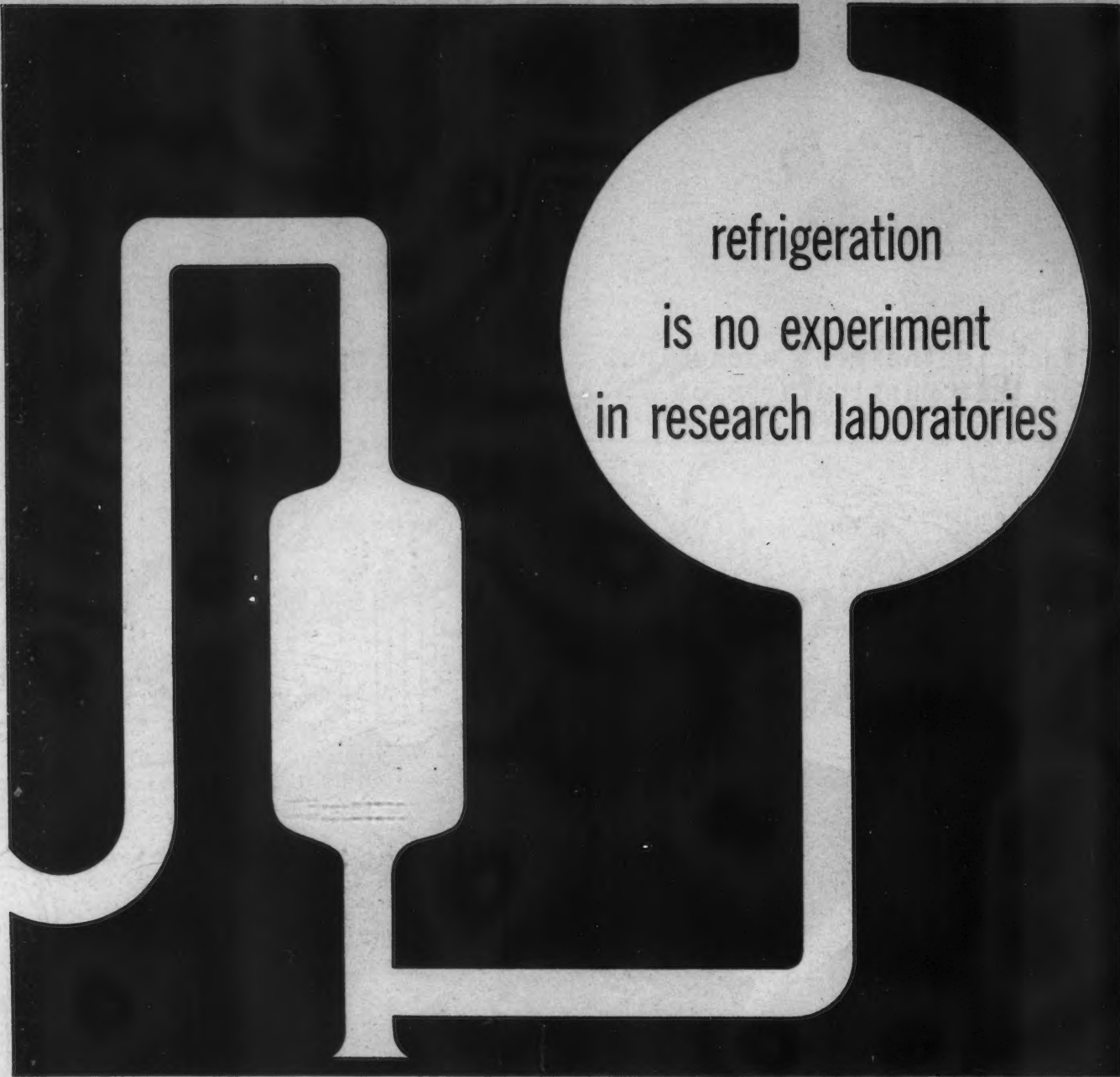
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trous, Olsonite
**ALL THE WAY
THROUGH!**



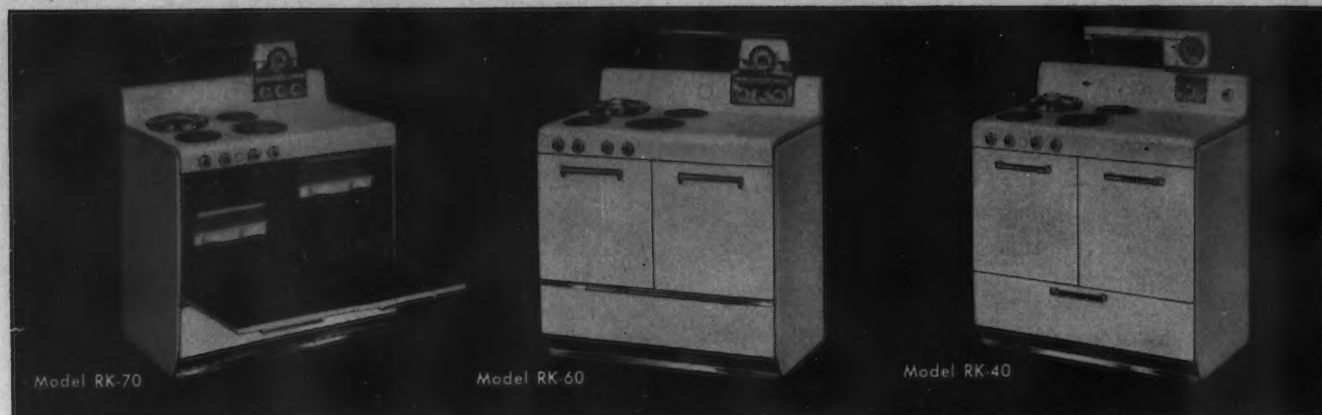
Lowest-Priced Seat of This Quality on the Market — and Guaranteed a Lifetime!

Olsonite Seats are far superior to ordinary wood, rubber, sheet-covered, or plastic-coated seats . . . and are far greater values! They won't crack, chip, peel, stain, or lose luster! Non-inflammable! No exposed metal. (Sold only through authorized plumbing and heating jobbers to Master Plumbers.) Contact your local jobber today. For full information write Olsonite Plastics Division.

Olsonite PLASTICS DIVISION

DIVISION OF SWEDISH CRUCIBLE STEEL COMPANY, DETROIT 11, MICH. (8561 BUTLER AVE.)

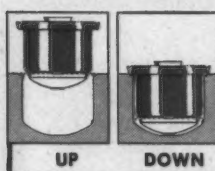




News and views of the new FRIGIDAIRE ELECTRIC RANGES



6 BEAUTIFUL NEW MODELS—ranging from the 2-oven, luxury-equipped RK-70 to a compactly-built, 3-surface-unit model for apartment and small kitchens. Highest-quality construction and operation features throughout the *entire line*—with each model offering what we believe to be the most outstanding convenience features to be found in its price class.



Triple-Duty Thermizer—Combination deep-well cooker, baker and extra surface unit. Unit quickly, easily raised or lowered—to serve as desired. On RK -40, -60, -70.

NEW DESIGN AND APPOINTMENTS—make this year's Frigidaire Electric Ranges more attractive than ever before. Fine appointments include new fluorescent cooking top lamps on the RK-40, -60, and -70, for cool, glare-free illumination entire length of cooking top. Cooking tops are acid-resisting porcelain; shelves, door pulls are rust-proofed.



Idea for Large Homes, Institutions, etc.—RK-70 used with RK-3D (has matching appointments.) Provides 7 surface units (or 6 and Thermizer), 3 ovens, 3 broilers!



Thriftomatic Thermizer Switch—Makes Thermizer cooking automatic. Can be set to cook at **HIGH** up to 20 minutes—then switches automatically to economical **SIMMER**. On RK -40, -60, -70.

MANY OTHER FEATURES...including 5-Speed Radiant Surface Units, the Even-Heat Oven, High-Speed Broiler, Cook-Master Oven Control, that are exceptionally convenient, reliable and economical to operate. Pressure Cooker also available as optional feature.



SEE YOUR FRIGIDAIRE DEALER. Find name in Classified Phone Directory. Or write: Frigidaire, Dayton 1, Ohio. (Canada: Leaside 12, Ontario.) Ask, too, for information about Frigidaire Refrigerators, Electric Water Heaters, Home Freezers, Automatic Home Laundry Equipment, Kitchen Cabinets and Sinks—or any "commercial" cold-making equipment.

YOU'RE TWICE AS SURE WITH TWO GREAT NAMES

FRIGIDAIRE
MADE ONLY BY
General Motors

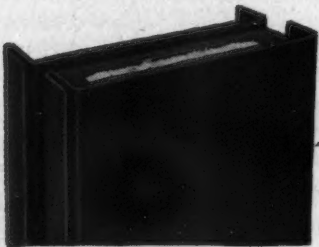
STEEL DECK



NONINSULATED STEEL DECK ROOFS and WALLS



INSULATED STEEL WALL
(FIELD CONSTRUCTED)



INSULATED STEEL WALL PANELS
(PREFABRICATED)

INSULATED STEEL WALLS

Mahon Insulated Steel Walls are Available in Two Types as Illustrated Above. Heat Transmission Coefficient "U" Equivalent to 18" Solid Masonry Wall.

Illustration: Rendering of Ideal Cement Company's Plant, Portland, Colo. Sterns-Rogers Company, Denver, Colo., Engineers and Contractors.

for ROOFS and WALLS!

The Cement Plant above, constructed for Ideal Cement Company, Portland, Colorado, is a typical application of Mahon Steel Deck Roofs and Mahon Steel Walls. A second cement plant of the same general design is now under construction for the same company at Devil's Slide, Utah. 600,000 sq. ft. of Mahon Steel Deck will go into the two plants. Galvanized Steel Deck Plates were used throughout . . . Plates were welded in place with ribs facing out on both roofs and walls to provide weathering—no insulation or waterproofing material was used on either. See Mahon Inserts in Sweet's Files for complete information, construction details and specifications . . . you will find that Mahon Steel Deck, due to its basic design, lends itself to a broader range of uses in modern construction.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 11, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Representatives in all Principal Cities

Manufacturers of Steel Deck for Roofs, Sidewalls, Ceilings, Floors, Partitions and Doors. Also Roof Sumps and Recesses, Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.

MAHON



Manufacturers Trust Co., New York City. To furnish 40' foot candles in tellers' counters from fixtures to blend with existing decor, continuous sections of 40W incandescent lamps with individual reflectors and No. 739 Holophane lenses were mounted on the soffit over the counters. Finish is sprayed bronze.

FOR TRUE LIGHTING SATISFACTION . . .

A FRINK *PLAN-O-LITE*

Whatever your lighting requirements may be, there's one way to be *sure* of achieving complete satisfaction and maximum efficiency. Take advantage of the unique *PLAN-O-LITE* service offered by Frink, makers of famous high-quality *L-I-N-O-L-I-T-E* fluorescent fixtures.

This convenient service supplies you with a *PLAN-O-LITE*, an individual layout of your proposed fluorescent installation, *custom-designed*

by Frink's engineers to meet your lighting needs. There is no extra charge for a *PLAN-O-LITE*. It's your guarantee of *planned* lighting efficiency at *standard-fixture* costs.

Send for the sample packet of *PLAN-O-LITE* layouts and photos of resulting installations. See for yourself how *PLAN-O-LITE* has benefited many of America's leading corporations. Mail the coupon today.

CLIP THIS TO YOUR LETTERHEAD



THE FRINK CORPORATION
27-01 Bridge Plaza North, L. I. C., N. Y.
Without cost or obligation, send your sample packet of *PLAN-O-LITE* fluorescent layouts and photos to the

Attention of

() also please send catalogue of new Frink fluorescent fixtures.

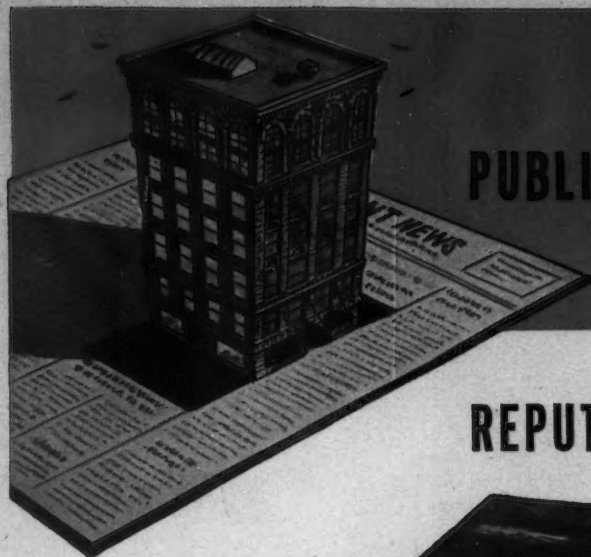
8-AR

There's a Frink *L-I-N-O-L-I-T-E* fixture correctly engineered for every commercial fluorescent lighting need. Seventeen standard designs of highest quality workmanship and materials, each available with matching incandescent down-lights if desired. Check coupon at left for your copy of the Frink catalogue today.



THE FRINK CORPORATION

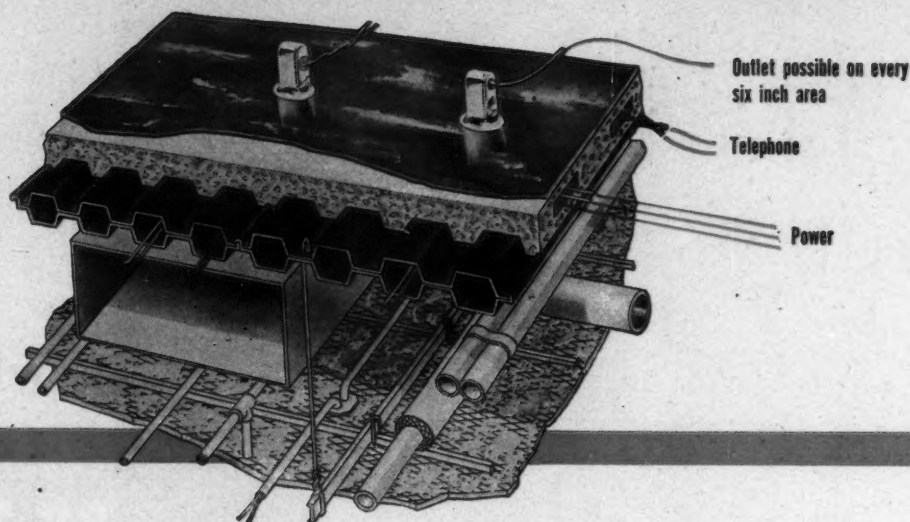
27-01 BRIDGE PLAZA NORTH, LONG ISLAND CITY, N. Y.



PUBLICITY FLARES FROM FACADES

REPUTATION LIVES ON FACILITIES

Steel Q-Floor is shown with suspended ceiling and condensed visualization of mechanical equipment (no preset inserts) needed in a modern building.



The flare of a facade is short-lived. The success, or failure, of a building's adaptability lives as long as the building. The all-over electrical availability of Q-Floors provides almost unlimited adaptability to mechanical change. This enables the building to remain continuously modern.

The entire exposed area of a Q-Floor can be tapped for electrical outlets. The cells of Q-Floor, a steel subfloor, are crossed over by headers. These carry wires for any type of electrical service. An electrician drills only a small hole wherever needed, installs the fitting on any six-inch area in a matter of minutes.

Outlets and partitions can be located after the building is tenanted. This permanent flexibility of floor layout protects the building against electrical obsolescence. Incidentally, it protects you against drafting room headaches.

Here are answers to the most usual questions: **Price**—it's right in line; costs less than the carpet. After all, floors are a small fraction of the total cost and yet, floors are what a building is for.

Availability of steel—you have to allow time for demolition and excavation. By then, based on our experience, the steel will be ready. That Q-Floor is being specified for the biggest buildings of the postwar is additional proof.

Your client will also be interested in the time saved during construction—20 to 30%. Q-Floors come pre-cut. Two men can lay 32 sq. ft. in 30 seconds. The dry, noncombustible construction, free from falsework, makes the Q-Floor a working platform for other trades as soon as laid. This quicker construction earns revenue sooner.

You can see Q-Floor fittings at any General Electric construction materials distributor's. For details about Q-Floor's light weight (less than forty pounds per sq. ft. including suspended ceiling) and its four-hour fire rating, see a Robertson Representative or write—

H. H. ROBERTSON COMPANY

2404 Farmers Bank Building
Pittsburgh 22, Pennsylvania



Offices in 50 Principal Cities
World-Wide Building Service



what about
tomorrow's
children?

Will they reach wisdom from the school you design today?

Will the beauty you envision on its walls, the gleaming cleanliness

in every corner, the freshness of detail, be theirs?

Yes, if you design well — with enduring material.

Nothing is more enduring than *Marble* — nothing more beautiful.

Only the simplest attention is necessary to keep it clean.

*Information about Marble
and Marble Service
will be given promptly by the
Marble Institute's Managing Director
Romer Shawhan, R. A.*

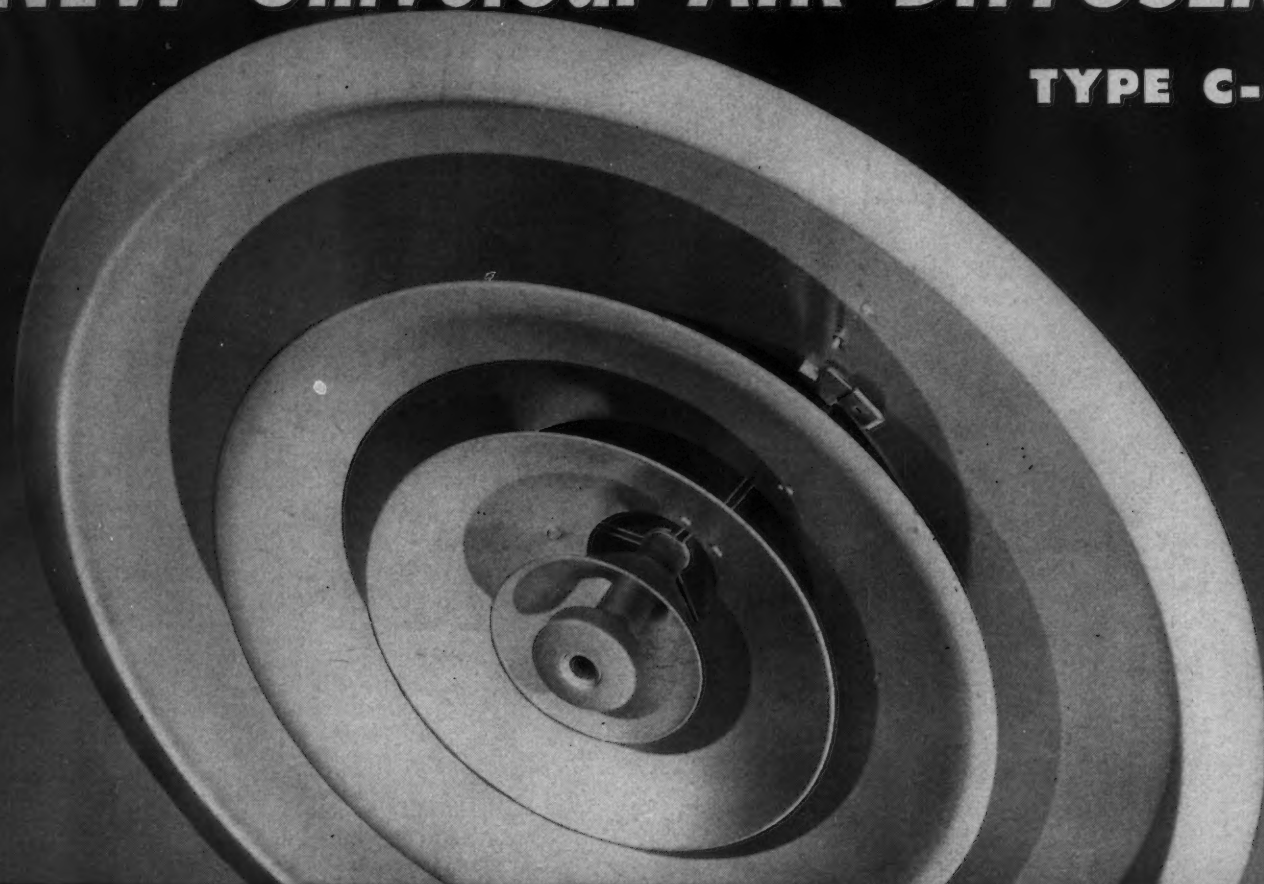


**Marble Institute
of America, inc.**

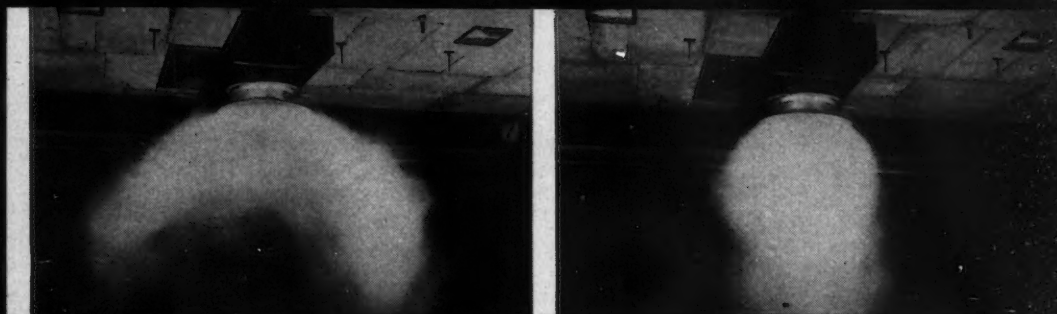
108 FORSTER AVENUE, MOUNT VERNON, N. Y.

ANEMOSTAT PRESENTS THE **NEW Universal AIR DIFFUSER**

TYPE C-1



ANY DESIRED AIR FLOW PATTERN WITH THE TURN OF A KNOB



These smoke test photographs show three of an infinite variety of air patterns available with the new Type C-1 Anemostat. A slight turn of the knob raises or lowers the third cone thus varying the air discharge from a draftless horizontal pattern used

primarily in cooling, to an intermediate downward pattern used in ventilating or to a direct downward discharge used in heating. The C-1 Anemostat functions equally well whether installed flush to ceiling or on exposed duct work.

OTHER IMPORTANT FEATURES!

Employs basic Anemostat Aspiration principle • Designed for heating, ventilating, cooling . . . in any combination. Adjustment may be varied to meet changing conditions of room occupancy, seasonal weather variations or special conditions. • System Balancing is far easier because direct CFM readings can readily be taken in the neck of the Anemostat as the inner assembly is instantly removable. • Newly designed method of fastening inner assembly to outer cone cuts installation time by two-thirds. • Automatic or manual remote controls available. • Provision is made for incorporating volume control or lighting fixtures.

WRITE FOR BULLETIN which fully describes the new Type C-1 Anemostat . . . an unusually versatile device.

ANEMOSTAT

REG. U. S. PAT. OFF.

DRAFTLESS AIR-DIFFUSERS

ANEMOSTAT CORPORATION OF AMERICA
10 EAST 39th STREET, NEW YORK 16, N. Y.
REPRESENTATIVES IN PRINCIPAL CITIES

"No air conditioning system is better than its air distribution"

AC-1190A

1. Extra Width. KIMSUL blankets provide fully insulated fastening edges.



2. Handy Compressed Package.

Comes in light, compact rolls—reduced to 1/5th installed length. Easy to handle—easy to apply.



3. Many-layer Stitched Construction. High thermal efficiency. ("k" factor of dependable KIMSUL is 0.27.)



No other insulation gives you these 6 exclusive building advantages



4. Extra Flexibility. Fits snugly into corners, behind pipes and other "tight spots".



5. Caulkability. Cut strips are excellent for caulking around windows and door frames.



6. PYROGARD† Fire-Resistant Cover.

Even its cover is entirely treated to resist fire and flame. A unique KIMSUL feature.



What's more, KIMSUL* insulation is precut to fit standard spaces between studs and rafters. It's permanent—won't sag or settle. Clean—no sharp particles to irritate workmen's skin. Adds little to structural load. (1,000 sq. ft. of Standard Thick KIMSUL weighs only 115 lbs.) Resists fire, moisture, vermin and fungi—and it's termite-proof. KIMSUL comes in

three thicknesses for the proper balance of efficiency and economy. Specify Commercial Thick (about 1/2 in.) and Standard Thick (about 1 in.) for walls, attics and floors; Double Thick (about 2 in.) for attics.

KIMBERLY-CLARK CORPORATION
KIMSUL Division, Neenah, Wisconsin, U. S. A.

FREE
INSULATION
BOOKLET



A brand new manual filled with technical data you can use. Prepared by the makers of KIMSUL. Write us for your free copy on your business letterhead.

Insulate when you build.

Over-all insulation

means ready salability.

*T. M. Reg. U. S. & Can. Pat. Off.
†Trademark



Jenkins PRACTICAL PIPING LAYOUTS 34

How to plan STEAM and WATER PIPING FOR A DYE PLANT

This typical dye plant hookup, includes a dyeing machine, hot water tank and drying room connections. The main steam line furnishes primary heat for the dyeing machine and drying room, and auxiliary heat for the hot water tank. Exhaust steam from the drying room furnishes primary heat for the hot water tank.

The cloth passes through the vats containing dye in water solution which is kept at the required temperature by thermostatic controls. This solution is heated by steam admitted through the perforated pipe. After material has been dyed, it is transferred to the drying room.

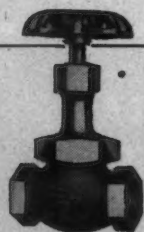
If exhaust steam from the drying room is inadequate to heat the amount of water required, the thermostatically controlled auxiliary steam coil fed directly from the main steam line goes into operation. The exhaust steam line from the drying room to the hot water tank should contain a bypass around the tank to condensate return lines. This will allow operation of the drying rooms when the primary heating coil in the hot water tank is not in operation.

Consultation with accredited piping engineers and contractors is recommended when planning any major piping installation. Copies of Layout No. 34, enlarged, with additional information, will be sent on request.

A CHOICE OF OVER 500 JENKINS VALVES
To save time, to simplify planning, to get all the advantages of Jenkins specialized valve engineering experience, select all the valves you need from the Jenkins Catalog. It's your best assurance of lowest cost in the long run.

Jenkins Bros., 80 White Street, New York 13; Bridgeport, Conn.; Atlanta; Boston; Philadelphia; Chicago; San Francisco, Jenkins Bros., Ltd., Montreal.

LOOK FOR THIS  DIAMOND MARK
Since *Jenkins Bros.* 1864



JENKINS VALVES

For every Industrial, Engineering, Marine, Plumbing-Heating Service . . . in Bronze, Iron, Cast Steel, and Corrosion-resisting Alloys . . . 125 to 600 lbs. pressure.

Sold Through Reliable Industrial Distributors Everywhere

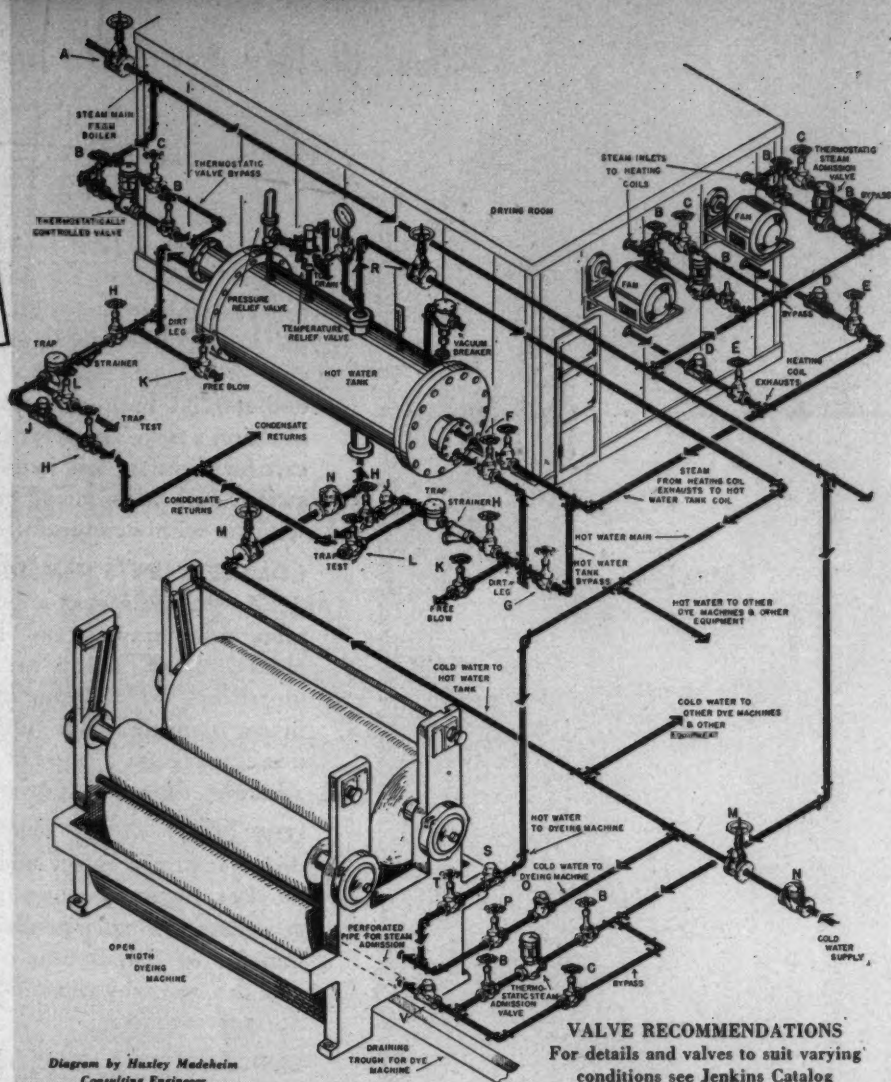


Diagram by Huxley Madeheim
Consulting Engineer

VALVE RECOMMENDATIONS
For details and valves to suit varying conditions see Jenkins Catalog

Code	Quan.	Jenkins Valves	Service
A	1	Fig. 651 IBBM Gate	Main Steam Line Shutoff
B	8	Fig. 47 Bronze Gate	Thermostatic Valve Shutoff
C	4	Fig. 956 Bronze Globe	Manual Control, Automatic Valve Bypass
D	2	Fig. 92 Bronze Swing Check	Prevent Backflow to Heating Coils
E	2	Fig. 370 Bronze Gate	Heating Coil Shutoff
F	2	Fig. 370 Bronze Gate	Hot Water Tank Heating Coil Shutoff
G	1	Fig. 106-A Bronze Globe	Exhaust Steam Bypass of Heating Coil
H	4	Fig. 370 Bronze Globe	Trap Shutoff
J	2	Fig. 92 Bronze Swing Check	Prevent Condensate Backflow
K	2	Fig. 106-A Bronze Globe	Free Blow on Condensate Lines

Code	Quan.	Jenkins Valves	Service
L	2	Fig. 106-A Bronze Globe	Trap Test
M	2	Fig. 651 IBBM Gate	Cold Water Supply Lines
N	2	Fig. 295 IBBM Swing Check	Cold Water Supply Lines
O	1	Fig. 352 Bronze Swing Check	Cold Water Supply to Dye Machine
P	1	Fig. 106-A Bronze Globe	Cold Water Supply to Dye Machine
R	1	Fig. 651 IBBM Gate	Hot Water Supply Shutoff
S	1	Fig. 92 Bronze Swing Check	Hot Water Supply to Dye Machine
T	1	Fig. 106-A Bronze Globe	Hot Water Supply to Dye Machine
U	1	Fig. 106-A Bronze Globe	Pressure Gage Control
V	1	Fig. 92 Bronze Swing Check	Prevent Back Flow to Steam Line

JENKINS BROS., 80 White Street, New York 13, N. Y.
Please send me a reprint of Piping Layout No. 34.

Name.....

Company.....

Address.....



ATTRACTIVE METAL DOORS

Immediately Available for Many Uses

Fenestra Fireshield Swing Doors are sturdily made, expertly finished, to make them suitable for many uses . . . entrances, exits, stairwells, communicating doors, etc.—for apartments, stores and other commercial buildings and factories, to mention a few. The door illustrated here can be right or left hand, swing in or swing out, with metal or glass panel, with or without muntin.

COMPLETE UNITS IMMEDIATELY AVAILABLE—these doors come to the site complete with frames and hardware machined, fitted, ready to assemble. No mortising, no drilling, no tapping, no prime painting. That simplifies installation . . . assures a good fit . . . saves construction time and money.

LOW COST—we are able to offer these doors at prices below many now on the market because standardization has streamlined factory production. Add the benefits of installation economies and you can see why these doors effect important savings.

UNDERWRITERS' LABEL. Doors of same design are available with Underwriters' B Label.

For full information on these doors, as well as counterweighted doors, call the nearest Fenestra office, or write to Detroit Steel Products Company, Dept. AR-8, 2252 East Grand Blvd., Detroit 11, Mich.

Fenestra

FIRESHIELD SWING AND SLIDE
METAL DOORS

You can be as modern as you like in planning basement recreation rooms when you choose American-Standard Heating Equipment. This inviting room owes a great deal of its charm to the trim OAKMONT Oil Boiler in the corner. But there's more than good styling to the Oakmont. Inside its smart Canyon Two-Tone Red jacket are all the sound engineering features needed to provide average sized homes with the carefree comfort and cleanliness of automatic oil heating.

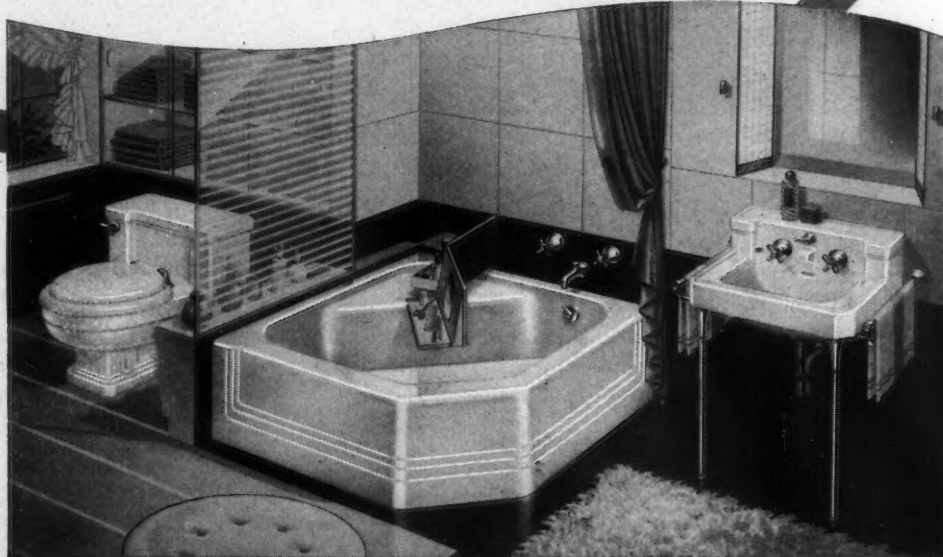


FIRST in heating and plumbing for styling and performance!

American-Standard products are designed and styled to stand out in any setting. And they are engineered and constructed to stand up under severe conditions of service. Made by the world's largest manufacturer of heating equipment and plumbing fixtures, they are backed by research and production facilities second to none! Yes, any way you look at them, they are as fine as money can

buy... yet they cost no more than others. That's another reason why more American homes have heating and plumbing by American-Standard than by any other single company. For the latest information about the complete American-Standard line, contact your Heating and Plumbing Contractor. American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pennsylvania.

There's a sumptuous air to this bathroom, much of which comes from the striking American-Standard Plumbing Fixtures. Center of attraction is the NEO-ANGLE Bath, which, while only about four feet square, is actually roomier than most conventional baths. The graceful shelf-backed lavatory is the COMPANION, and the water closet is the quiet, thorough-flushing MASTER ONE-PIECE. All are available in white and a choice of many colors.



AMERICAN-Standard

First in Heating and Plumbing

LOOK FOR THIS MARK OF MERIT—It identifies the world's largest line of Heating and Plumbing Products for every use... including Boilers, Warm Air Furnaces, Winter Air Conditioners, for all fuels—Water Heaters—Radiators, Convectors, Enclosures—Gas and Oil Burners—Heating Accessories—Bathtubs, Water Closets, Lavatories, Kitchen Sinks, Laundry Trays, Brass Trim—and specialized products for Hospitals, Hotels, Schools, Ships and Railroads.



STORE PLANNED FOR THE FUTURE...

Fabulous Foley's!



The Crystal Room, exclusive gown salon in Foley's, the new Federated Department Store in Houston — another great store that chooses Bigelow Carpets. Raymond Loewy Associates, Retail Planners and Designers.

Floor-planned for the future with Bigelow Carpets!

Foley's went all-out modern in their news-making Houston store. Spacious, windowless, air-conditioned — it's the last word in customer comfort.

And when it comes to carpeting, Foley's is all-out Bigelow! Every floor is covered with the same top-choice commercial carpet — Bigelow's famous Gropoint. So soft and springy underfoot. So easy on the upkeep because its uncut surface resists shading and that "beaten track" look caused by traffic.

When it comes to choosing carpets for fine stores, hotels, or other business establishments, you'll find

that Bigelow has the answers. You'll discover a wealth of them right in a Bigelow swatch book.

And Bigelow's own Carpet Counsel is at your service to solve any problems, no matter how small or great. So bring your carpet questions — all of them — to our board of experts.

They'll be pleased to advise on correct carpet types, costs, installations, colors, and patterns, including special custom-created designs.

There are 26 Bigelow Carpet Counsel Offices. One is near you — ready and waiting to serve you.

Bigelow Rugs and Carpets

Beauty You Can See... Quality You Can Trust... Since 1825

GET BETTER TILE AND BLOCK-WORK with **BRIXMENT!**

Tile or block-work offers very little protection against the penetration of water, unless both inside and outside head joints are completely filled with mortar.

In laying clay tile, or concrete or cinder block, even when they are used only for back-up work, especial care should be taken to secure full head joints on both the inside and the outside edges of the unit. Either of the following two methods may be used:



Method 1. Full head joints should be thrown onto both edges of the tile to be placed, or—



Method 2. A full head joint should be thrown onto one edge of the tile in place and also onto the opposite edge of the tile to be placed.



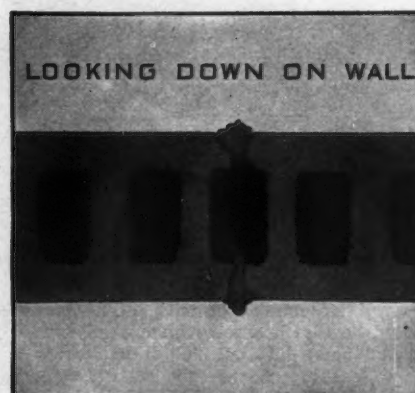
Enough mortar should be used to cause excess mortar to ooze out of the joints on both sides of the tile.



Method 1. Full head joints should be thrown onto both edges of the block to be placed, or—



Method 2. A full head joint should be thrown onto one edge of the block already in place and also onto the opposite edge of the block to be placed.



Enough mortar should be used to cause excess mortar to ooze out of the joints on both sides of the block.

One of the reasons bricklayers prefer Brixment mortar is the way it *sticks* to the tile or block, as shown above. It "stays put." The bricklayer does not have to stoop to the board for more mortar. You get a stronger, more water-resistant wall. ● Brixment mortar is

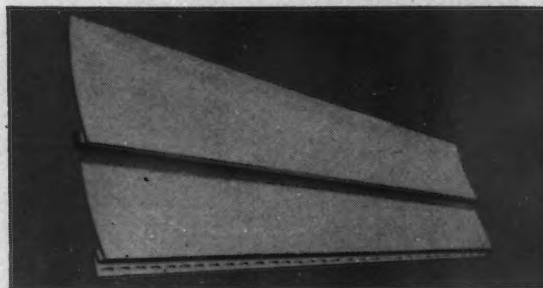
easier to work, saves time, effort, and money. In addition, it has higher water-retaining capacity, greater bonding quality, is more durable. It is this *combination* of advantages that has made Brixment the largest-selling masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY



Only Kaiser Aluminum Siding combines these qualities!

BEAUTIFUL! Kaiser Aluminum Siding is a new kind of material, produced by precision machinery from highest grade, roll-hardened, dent-resistant aluminum. Each piece is perfectly uniform in quality and beauty, unmarred by knots, splits or sawing scars. It comes from the mill with a zinc chromate prime coat, ready for paint finishes that won't flake, peel, chip or blister. It will need repainting less often than other materials—and when it becomes dirty, it can be washed easily and with perfect safety, for it cannot absorb paint-destroying moisture.



PERMANENT! Because it's long-lasting *metal*, Kaiser Aluminum Siding can never, never rot, rust, warp or shrink. Exteriors made of it will last for *generations* in any climate!



ECONOMICAL! Here's *superior* siding that costs no more than other high quality materials. And it saves money during erection because its ease of application speeds construction time, cuts labor costs. It takes half the ordinary number of nails, and needs less paint, because it absorbs none. And it will need none of the usual kind of maintenance.



WEATHERTIGHT! This new material is the only metal siding with a curved surface. Which means it forms a weathertight, rigid joint when the lower edge is nailed down. It also means there's no "oil can," waves or buckles to mar the beauty. What's more, the concave surface forms deep, attractive shadow lines and increases the strength of the material.



TOUGH—but easy to work with! Kaiser Aluminum Siding cannot be damaged by rats or insects, and it resists fire. But it's a light-weight material that carpenters *like* to work with. No special tools are required and it can be handled with perfect ease. One man can carry 200 base feet of it! Prepare to specify Kaiser Aluminum Siding to *your* clients now!

No other material can match this unique combination of advantages! Write for free booklet packed with pictures and interesting information about this new material!

Kaiser Aluminum Siding specifications:

Length	10, 12, 14 and 16 ft. standard lengths
Width	6 7/8" Thickness .030"
Weight	580 lbs. per 1143 base feet (1000 sq. ft.)
Shipped in cartons containing 200 base feet, weighing 106 lbs. overall.	

Kaiser Aluminum SIDING

product of Permanente Metals Corp.

SOLD BY PERMANENTE PRODUCTS COMPANY, KAISER BUILDING, OAKLAND 12, CALIFORNIA . . . WITH OFFICES IN:
Atlanta • Chicago • Cincinnati • Cleveland • Dallas • Detroit • Houston • Indianapolis • Kansas City • Los Angeles • Milwaukee • Minneapolis
New York • Oakland • Philadelphia • Portland, Ore. • Salt Lake City • Seattle • Spokane • St. Louis • Wichita

... and for
fluorescent lighting
I insist on
Certified Ballasts!

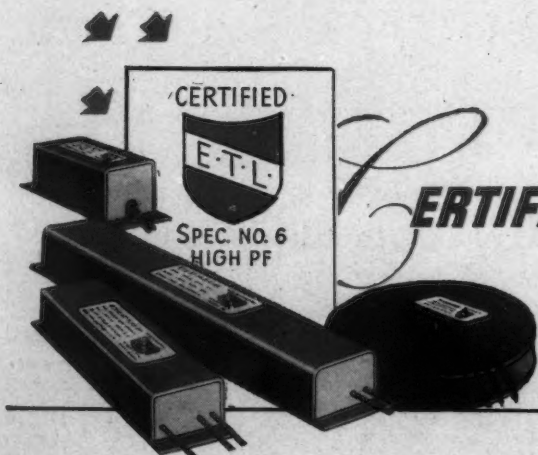


You're wise, too, when you insist on Certified Ballasts.

That's one way to assure—

- Full rated lamp life
- Quiet operation
- Long, dependable performance
- Full rated light output

Certified Ballasts are better because they are built to rigid specifications
that assure high performance—then are tested,
checked and “certified” by impartial
Electrical Testing Laboratories, Inc.



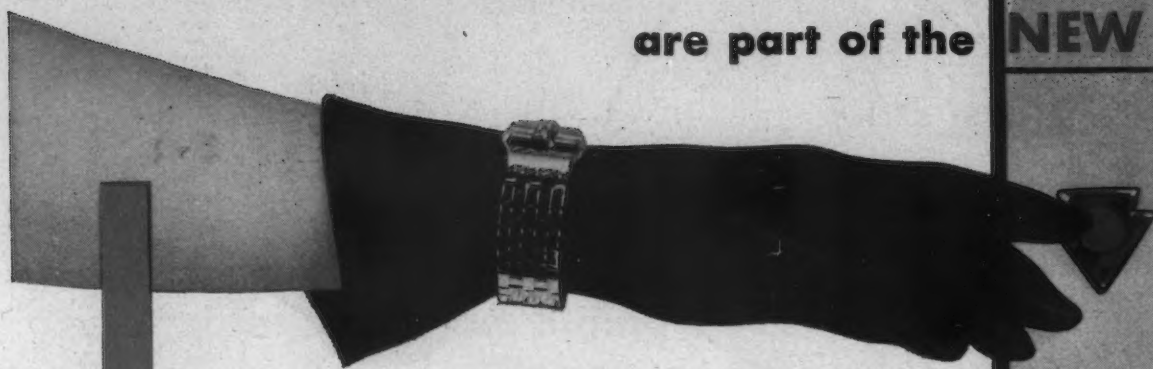
CERTIFIED BALLAST MANUFACTURERS

Makers of Certified Ballasts for Fluorescent Lighting

2116 KEITH BLDG., CLEVELAND 15, OHIO

electronic 'TOUCH BUTTONS'

are part of the **NEW WAY**



The instant your finger contacts an OTIS electronic 'touch button' a directional arrow lights up. The light shows that your call has been registered. As the elevator approaches your floor the overhead lantern also lights up. Both lights stay on until your call is answered. It's all controlled electronically.



AS ALWAYS, OTIS LEADS THE WAY . . . THIS TIME WITH

of commercial living

The world's first Electronic Signal Control Elevators are now in operation in New York's *first* postwar skyscraper, the Universal Pictures Building at 445 Park Avenue.

OTIS engineers, who were working on electronics before World War II have applied the magic of modern electronics to improve Signal Control operation. As a result, you can now summon an elevator by simply *touching* a plastic arrow in the landing fixture.

OTIS Electronic 'touch buttons' and overhead lanterns are attractively modern. They blend admirably with modern interiors, as pictured at the right. And their electronic 'touch' operation dramatizes the advanced design of the installation.

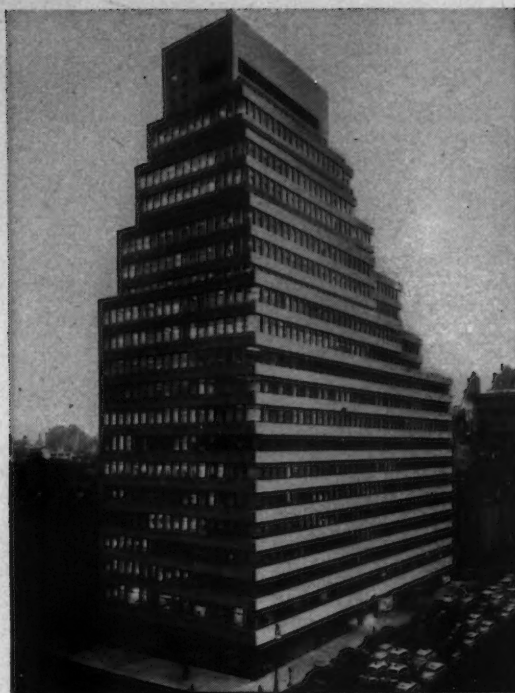
OTIS Electronic Signal Control is applicable to all elevators. But for the immediate present, it will be confined to elevators that travel at speeds of 500 feet per minute or more.

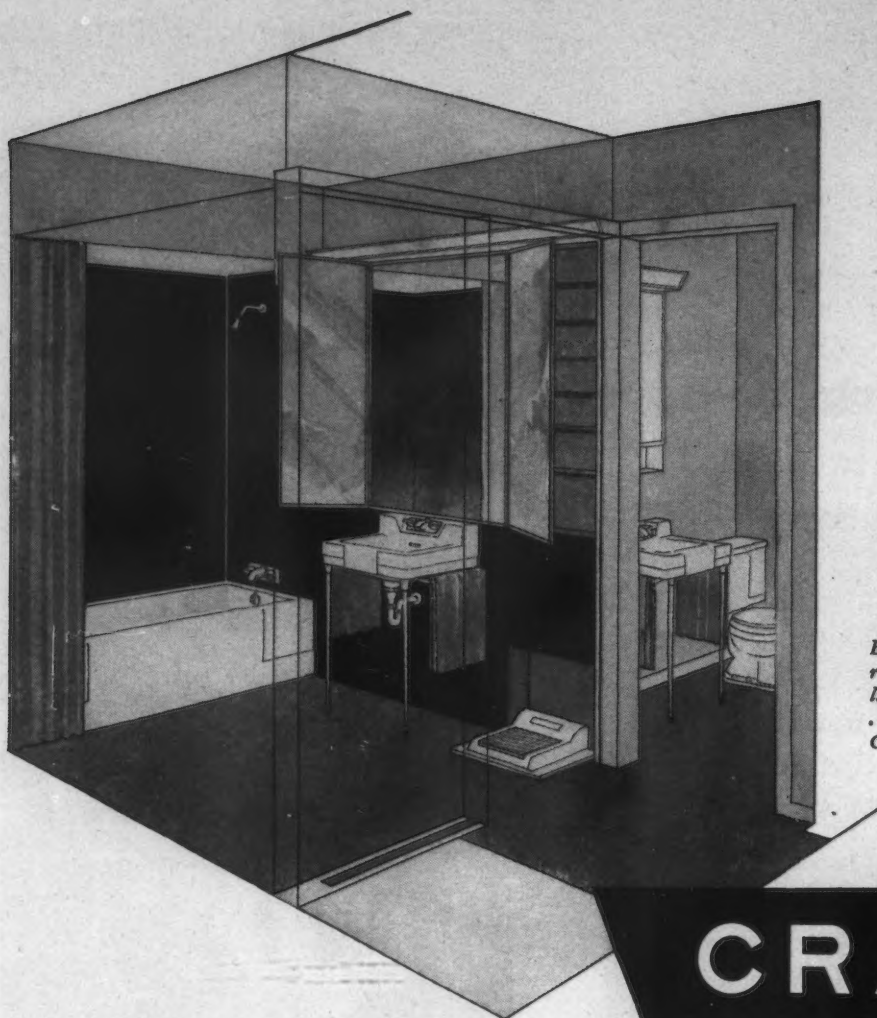
Otis Elevator Company. Offices in all principal cities.



**ELECTRONIC SIGNAL CONTROL
ELEVATORS**

THE MAGIC OF MODERN ELECTRONICS





Bathing and toilet facilities are separated in this new Crane bathroom. Twin lavatories make each section complete ... all fixtures from the Crane Oxford Group.

CRANE

... *always* "most likely to succeed"

● It's hard to please Mr. and Mrs. Home Owner with everything you suggest. But nothing is so *likely* to succeed as Crane plumbing ... Crane is the name they themselves have chosen over all other plumbing brands.

Home owners like Crane quality, Crane styling. They like the completeness of line that gives them a style for *their* taste and a price for *their* budget.

Popularity ... Quality ... Completeness. All three are characteristic of the Crane line of bathroom, kitchen, and laundry fixtures. You can have Crane quality in heating, too—everything required for any system, any fuel:

In making selections, refer to your copy of "Crane Service for Architects," or ask your Crane branch for one. Not all fixtures are immediately available everywhere—check your wants with your Crane branch or wholesaler.

CRANE

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO 5
PLUMBING AND HEATING
VALVES • FITTINGS • PIPE

A home with *Suntile*

is a home with ● BETTER TILE

● BETTER INSTALLATION

Any home is a better home if it has Suntile in bathroom, kitchen, foyer, patio.

You assure *two* things for any home you design when you select Suntile:

Better Tile. Suntile's extra quality in form and finish is achieved through rigid manufacturing control. Suntile's *color-balance*—a distinctive feature which makes harmonious blends so easy to achieve—is the result of scientific color measurement and selection.

Better Installation. Authorized Suntile dealers, carefully selected and trained, see to it that every

Suntile installation reflects the excellence of the product they represent and the wisdom of your own selection.

For better tile—better installation, let us send you the name of an Authorized Suntile Dealer. He can show you real clay Suntile in 16 wall colors. In addition, he can show you impervious unglazed ceramic mosaic Suntile in 15 colors—and Suntile Camargos in 10 colors—both in modular sizes.

See Sweet's Catalog for more complete information. The Cambridge Tile Manufacturing Company, Cincinnati 15, Ohio.



Suntile OFFERS YOU BOTH—*Better Tile.... Better Installation*



New School Building in Alabama. This is the Vincent School, a combination elementary-high school at Vincent, Alabama. Containing 17 classrooms, an auditorium-gymnasium and a cafeteria, the structure has 31,250 sq ft of floor space, and accommodates some 600 students. Bethlehem Open-Web Steel Joists are used throughout in combination

with concrete slab and plaster ceilings, not only for economy, but also to obtain durable, non-shrinking floor structures which are resistant to fire, squeak-proof and immune to attack by vermin. *Architect:* C. H. McCauley, Birmingham, Ala. *Contractor:* J. F. Holley, Birmingham, Ala.



THIS HANDLE

Automatically Trips Off



when
**SHORT
CIRCUITS**

or
**DANGEROUS
OVERLOADS**
Occur!

THERE'S NO WORRY about short circuits or overloads in the plants, stores and offices that are equipped with **FA** Panelboards made up with **FA** Thermag Circuit Breakers.

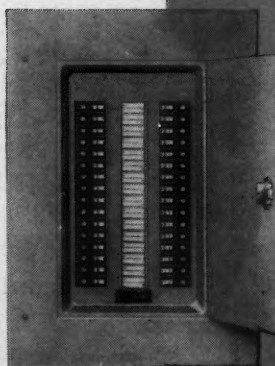
These efficient circuit breakers interrupt any dangerous current by operating *automatically* and tripping the handle to the "off" position to indicate the circuit in trouble. There's no intermediate handle position... nothing to replace... no danger of shock.

This modern safety and convenience is the result of a thermal-magnetic action that automatically opens the troubled circuit... and as long as the trouble remains, the circuit breaker will continue to trip to the "off" position when any attempt is made to restore service.

Once the cause of trouble has been eliminated, the circuit breaker handle can easily be flipped to the "on" position, restoring the circuit to normal operation.

See your nearest **FA** Representative for more details (he's listed in Sweet's), or write direct for Bulletin No. 301.

For Automatic
CIRCUIT PROTECTION
install
FA **PANELBOARDS**
with
THERMAG
CIRCUIT BREAKERS



*Shockproof and simple to operate, **FA** Thermag Panelboards can be installed in any size plant, store or office. Capacities: 15 to 50 amps. for 120 volts AC service only; single or double pole; 4 to 42 branch circuits with 3 wire and 4 wire solid neutral mains.*



Frank Adam Electric Co.

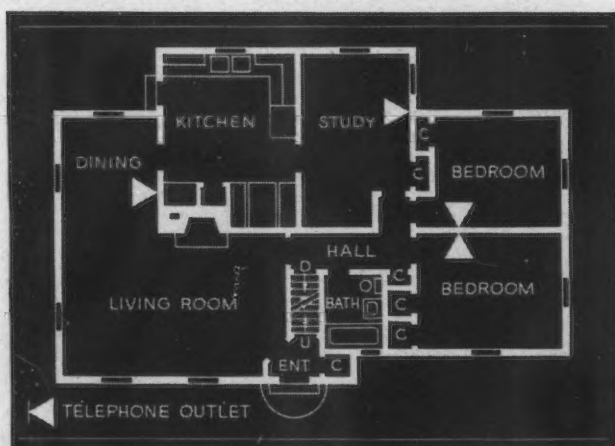
ST. LOUIS 13, MISSOURI

Makers of BUSDUCT • PANELBOARDS • SWITCHBOARDS • SERVICE
EQUIPMENT • SAFETY SWITCHES • LOAD CENTERS • QUIKHETER



George R. Paul, Architect

IT HAS EVERYTHING...INCLUDING TELEPHONE RACEWAYS



Nowadays even the smaller homes have telephone raceways. When telephones are installed, these raceways assure the owners of telephone convenience without exposed wires on walls and woodwork.

Installed during construction, telephone raceways cost little extra. In one-story homes without a basement, a few pieces of pipe or electrical tubing under the floor or above the ceiling will provide a clear path for telephone wires to outlet locations.

For small or large homes, your Bell Telephone Company will be glad to help you plan modern telephone arrangements. Just call your telephone Business Office and ask for "Architects and Builders Service."

BELL TELEPHONE SYSTEM





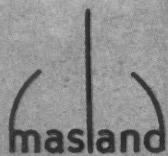
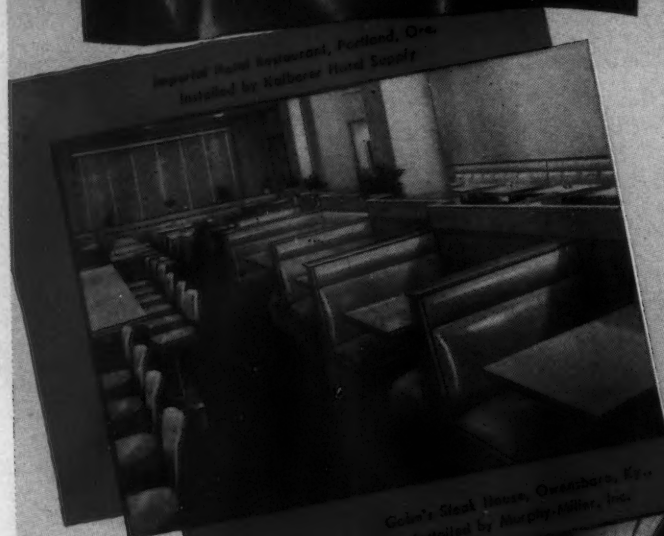
.. for interiors that invite...

VERSATILE BEAUTY—Duran in pastels—deep vibrant tones—luxury on furniture, walls, doors, ceilings and panelling.

RELAXING COMFORT—Duran all-plastic—superbly resilient—pleasant to touch.

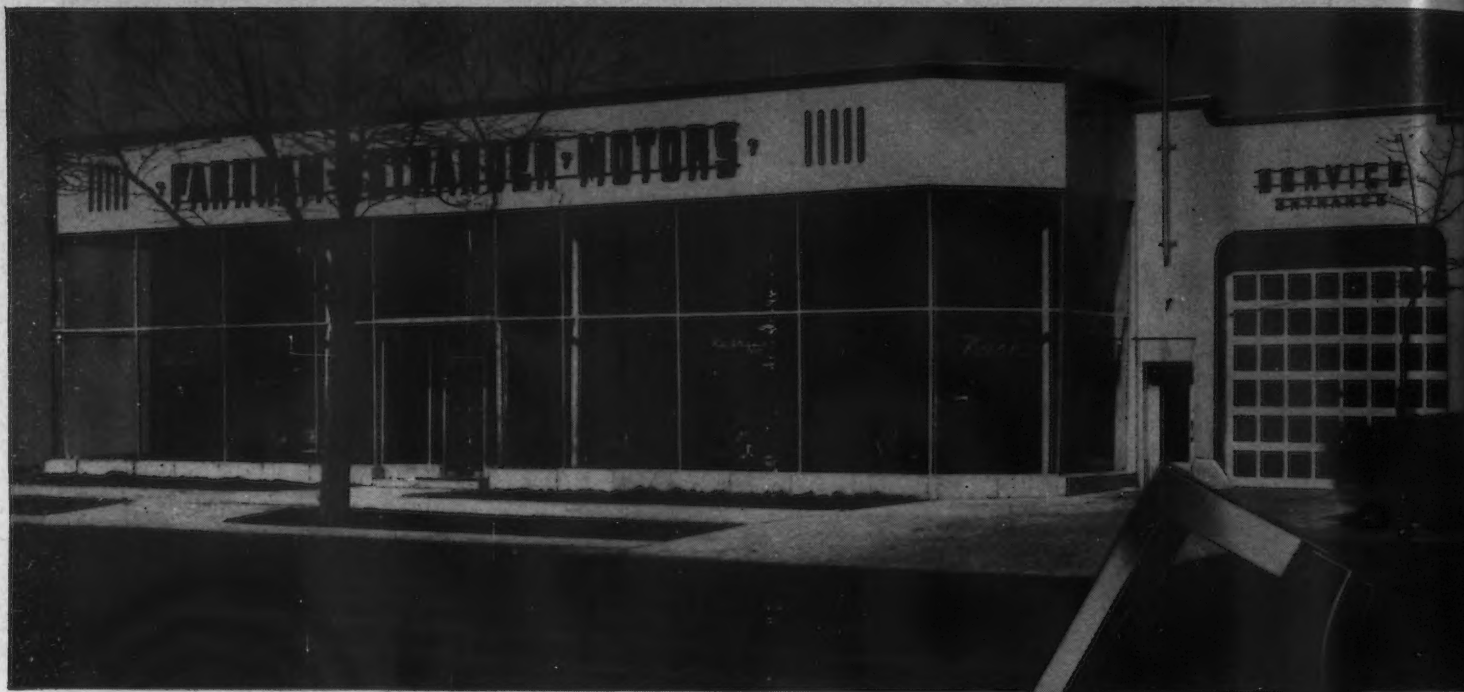
LONG WEAR—Duran resists scuffing, peeling, fading—smears, food stains wipe off easily.

For superb decorative effects on new installations, renovations, or re-upholstering jobs, specify Duran. Write for sample.



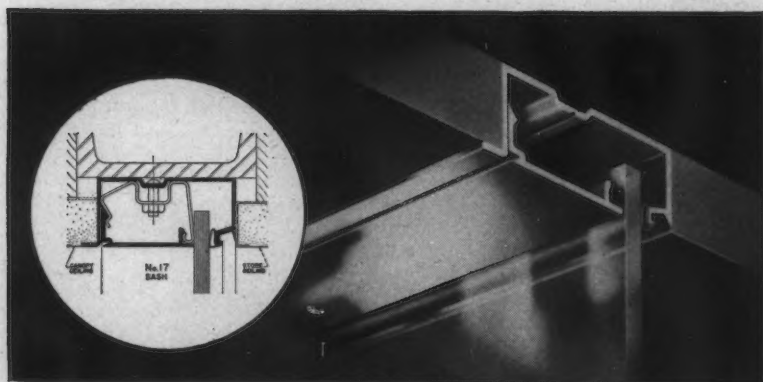
THE MASLAND DURA-LEATHER COMPANY • 3236-90 AMBER ST. • PHILADELPHIA 34, PA.

Interesting uses of *Glass* in



IT'S HARD TO PASS BY one of the new, "Open Vision" store fronts without looking to see what is inside. That's why so many clients are requesting "open vision" store front designs. "Pittsburgh" has a complete line of quality products to help you meet the exacting demands of this new trend.

(Architect: Harrison E. Baldwin, New Haven, Conn.)



THIS MEMBER OF THE PITCO DE LUXE LINE of store front metal, known as No. 17 Sash, was designed for use where it is desired to have the ceilings of canopy and store on the same plane, apparently joining each other without interruption. It can also be used at the sides. This sash is self-adjusting to allow for a certain amount of deflection in beam or canopy. There are no obstructions between the edge of the glass and the inner member.

TWINDOW, "Pittsburgh's" new window with built-in insulation, is ideal for scores of applications in modern buildings. The Twindow unit is made up of 2 or more panes of glass with a sealed-in air space between. A 2-pane unit cuts heat loss through windows nearly in half. And insulating effectiveness becomes even greater when Twindow has three or four panes of glass with corresponding air spaces. With Twindow windows, drafts are minimized, heating costs are lower, and windows seldom get "steamy."

PITTSBURGH PLATE GLASS COMPANY PITTSBURGH

THIS MODERN use of glass bars, kitchen, constantly increasing qualities. Clean, less clear, crease the, tive colors.

We believe you are turning the use of

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Pitt

in Commercial Buildings



THIS MODERN CORRIDOR owes its striking appearance to the judicious use of Carrara Structural Glass. In lobbies, toilet rooms, bathrooms, bars, kitchens, barber shops and hundreds of other installations, the constantly increasing use of this beautiful glass is indicative of its outstanding qualities. Carrara installations are permanent. They're easy to keep spotlessly clean. And numerous surface treatments possible on Carrara increase the decorative possibilities of the material. Available in 10 attractive colors.

(Architect: William York Cocken, Pittsburgh)



PITTSBURGH CORNING GLASS BLOCKS have been called "the material of a thousand uses." And for good reasons! They are exceptionally attractive in appearance. They have excellent insulating properties that contribute to uniform, economical heating. They transmit daylight generously, directed and diffused as desired. And they offer an excellent way to preserve privacy.

(Architect: Edward F. Sinnott, Richmond, Virginia)

We believe you will find much to interest you in our illustrated booklet of ideas concerning the use of Pittsburgh Glass in building design. Send the coupon for your free copy.

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Please send me, without obligation, your free booklet entitled "Ideas for the Use of Pittsburgh Glass in Building Design."

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Einson-Freeman moved a "Mountain"



*...and Trucks
moved faster!*

**IF YOU THINK YOU'VE
GOT A TOUGH SHIPPING PROBLEM
... LISTEN TO THIS ONE!**

PROBLEM: Einson-Freeman, lithographers, acquired a former war plant in Fairlawn, N. J. Two things stood in the way of efficient freight handling. Only one loading dock, and an obstructing hill-top homesite.

PROCEDURE: Which would cost less: to suffer cramped shipping quarters—or to move a "mountain"? Cost studies gave the answer. The "mountain" was moved!

RESULT: Decreased waiting time. Fewer man-hours lost. Decreased handling costs. Decreased customer complaints. Increased trucking efficiency. Increased production.

Even if you had to move a "mountain" to modernize your truck shipping facilities, it would pay. But—extending your loading dock a few feet might do it. Or cutting through a brick wall.

The cost of such a job is slight. The profits are big. All it needs is a little imagination . . . a little study . . . and somebody to say "Go."

Why don't you start by calling in your traffic manager and by consulting your architect?



THE AMERICAN TRUCKING INDUSTRY

AMERICAN TRUCKING ASSOCIATIONS, WASHINGTON 6, D. C.

GOODS CAN'T MOVE FASTER THAN THEY'RE LOADED!

To keep good company AT COCKTAIL TIME—USE G-E TEXTOLITE* TABLE TOPS

WHY YOU SHOULD USE TEXTOLITE

Textolite is beautiful

That fresh sparkle is there to stay.
Needs no scrubbing, no polishing,
no refinishing.

Textolite resists scratching

Beautiful but tough, it's harder to
scratch than low-carbon steel.

Textolite is glare-free

Its non-reflective finish is easy
and pleasant on the eyes.

Textolite resists heat

Even scalding liquids won't mar
its lustrous surface. A special
grade is cigarette-proof.

Textolite is stainproof

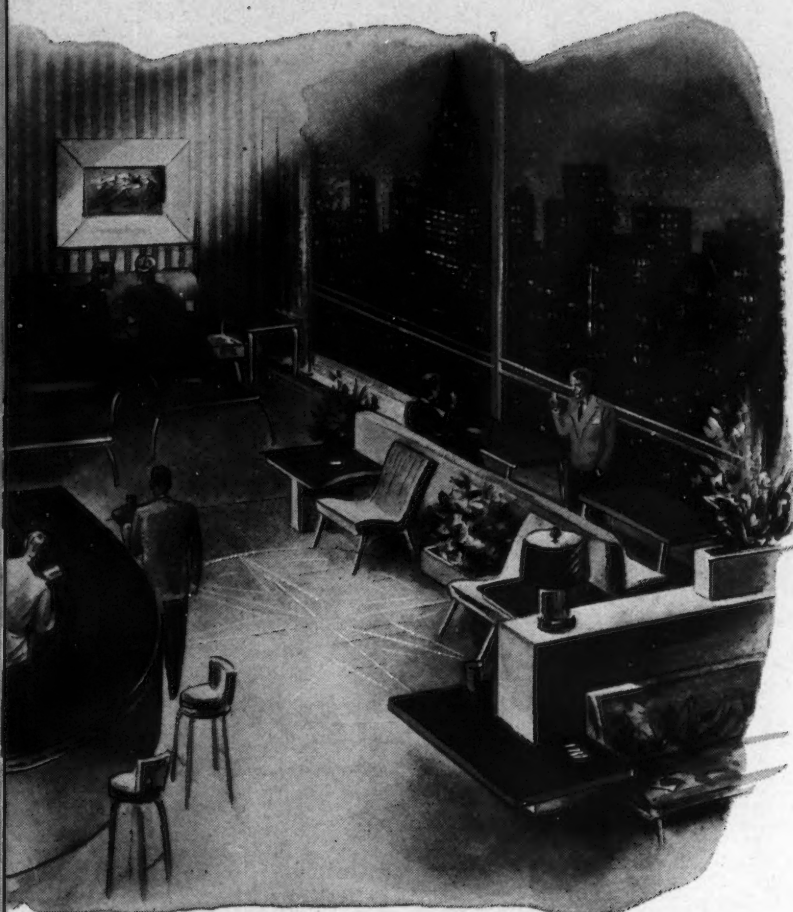
Hard, non-porous, it sheds food
acids, alcohol, and fruit juices.

Textolite cleans easily

It wipes clean quickly with a
damp cloth—saves time and
effort.

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Textolite is available in a wide variety of colors, solid and patterned, most of which are ideal for this type of installation. For free booklet and more details about G-E Textolite, send the coupon or write.



Cocktail customers keep coming back to an atmosphere they enjoy. Top your tables with General Electric Textolite decorative surfacing material and you build in *maximum customer appeal*. This lustrous plastics surfacing stays sparkling fresh, never seems to show wear.

Use it for cabinet and counter tops, as well as for decorative paneling. Send the coupon for a free booklet showing G-E Textolite patterns in full color. Plastics Division, Chemical Department, General Electric Co., 1 Plastics Ave., Pittsfield, Mass.

FREE!
SEND FOR
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Please send me a free copy of your
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GENERAL ELECTRIC

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Everything in plastics

*Reg. U. S. Pat. Off.

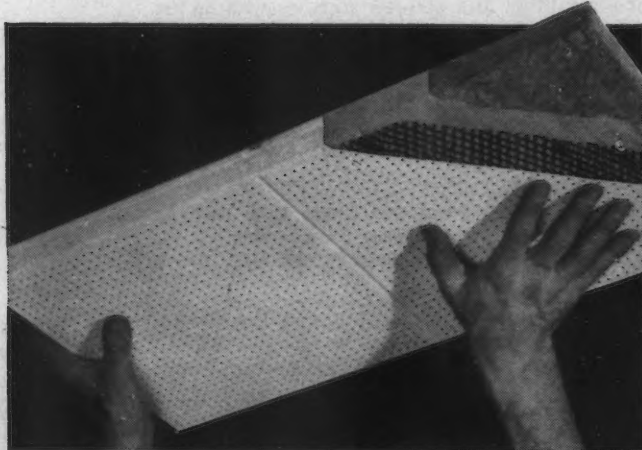
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THUNDER IN THE CORRIDORS?

A HOSPITAL corridor can be a booming echo chamber! Ordinary footsteps sound like thunder-claps. It's a trying condition disturbing to both patients and staff. But it can be easily remedied:

You can stifle corridor noise with Gold Bond Acoustimetal. It's designed to insure maximum noise reduction—and to give high light reflection. And it's *Fireproof*.



Gold Bond Acoustimetal—The Fireproof, washable acoustical tile for exacting sound control.

to fit new building code specifications.

Best of all, maintenance is cut to an all time low! Each tile is an access panel, for quick repairs to wiring, piping, and air ducts. The 12" x 24" perforated pans snap into patented T-bars, and these T-bars can be mounted any distance from the ceiling which may be required to provide space for pipes, cables, and ducts. They are as adaptable to remodeling as to new building.

What's more, Acoustimetal can be washed repeatedly and even repainted without loss of sound absorption. Write now for the new Acoustimetal folder for complete details.

You'll build or
remodel better with
Gold Bond

NATIONAL GYPSUM COMPANY • BUFFALO 2, N. Y.

Over 150 Gold Bond Products including gypsum lath, plaster, lime, wallboards, gypsum sheathing, rock wool insulation, metal lath products and partition systems, wall paint and acoustical materials.

World's Largest Home Builder

Installs 4,000 *Tracy* Customized Kitchens



Levitt & Sons selected

the famous **TRACY SINKS** in Lifetime Stainless Steel

and these new, beautiful Tracy Kitchen Cabinets

for their revolutionary, low cost housing development in Levittown, Long Island, N. Y.

Four thousand Levittown houses will have kitchen sinks and cabinets identical with those in some of the costliest homes in America. The four thousand bathrooms, too, will be equipped with the new Tracy stainless steel cabinets.

Tracy Customized Kitchens are built in a brand new plant especially designed to produce steel kitchens of custom quality on a mass production basis . . . built by master craftsmen to the high quality standards of the famous Tracy sinks in Lifetime Stainless Steel.

A Tracy sink is easier to clean . . . cannot crack, chip, warp or rot . . . resists food acids, heat and hard usage . . . a lifetime of kitchen beauty. No wonder the world's largest home builder chose Tracy Customized Kitchens by the world's largest manufacturer of Stainless Steel Kitchen Sinks!



Tracy Manufacturing Co. Dept. AR1, Pittsburgh 12, Pa.

Write for booklet showing the complete Tracy line, with construction details.

The New Kawneer

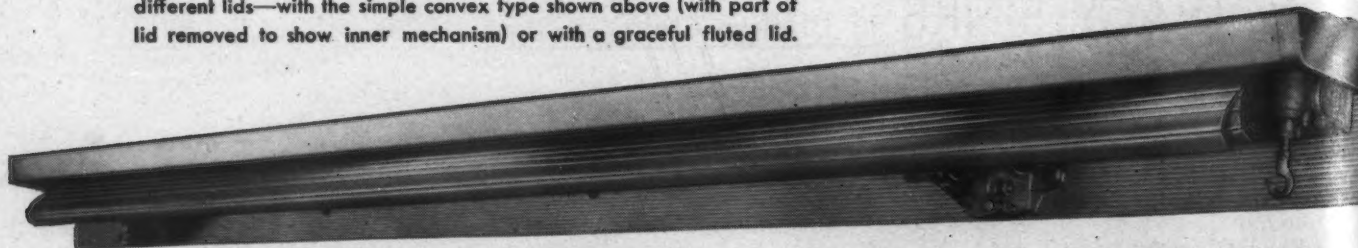
Aluminum Roll-Type Awning

Striking in Appearance
Sturdy and Durable
Easy to Operate

Here is the
cleanly-styled, smooth-operating
aluminum awning
you've been waiting for



This outstanding Awning can be obtained as a completely assembled package unit, ready for quick installation. It is available with two different lids—with the simple convex type shown above (with part of lid removed to show inner mechanism) or with a graceful fluted lid.



The Kawneer Aluminum Roll-Type Awning is also furnished as an assembled unit with the hood shown above. In many cases it can be fitted into existing boxes and under existing hoods. The Kawneer Awning, therefore, is ideal for replacement work or new installations.



The A

The clean
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Smooth
—because
tested a
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Whether
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Kawneer
complete



The Aluminum Roll-Type Awning that solves your awning problem

The clean-lined, modern appearance of the Kawneer Awning will add rich and striking individuality to any facade or entrance—because it's designed to meet the highest architectural standards.

Smooth, trouble-free operation is assured year after year—because the entire unit has been exhaustively factory-tested and job-tested. It has conclusively proved its durability, dependability and permanence.

Whether operated by hand or motor, the Kawneer Awning rolls and unrolls easily. It winds up into a compact roll. Constructed of Aluminum, it has been designed and engineered to combine light weight with the structural strength to withstand hard usage. Maintenance and replacement costs are reduced to a minimum.

Kawneer Aluminum Roll-Type Awnings are furnished as completely-assembled package units, ready for quick instal-

lation. They can be ordered either with concealed awning boxes or with a hood for surface application.

Awning lengths up to 20 feet and widths up to 8 feet are furnished as individual units. When lengths of more than 20 feet are required, multiple units can be obtained.

Lateral hinged arms are made of strong pipe with heavy cast iron elbows. The awning itself is made of Alclad 24 ST aluminum for maximum strength and greatest resistance to the elements.

Write for Kawneer's Aluminum Awning Booklet today. The Kawneer Company, 107 N. Front St., Niles, Mich.: 2513 Dwight Way, Berkeley, Calif.: Lexington, Ky.

THE
Kawneer
COMPANY

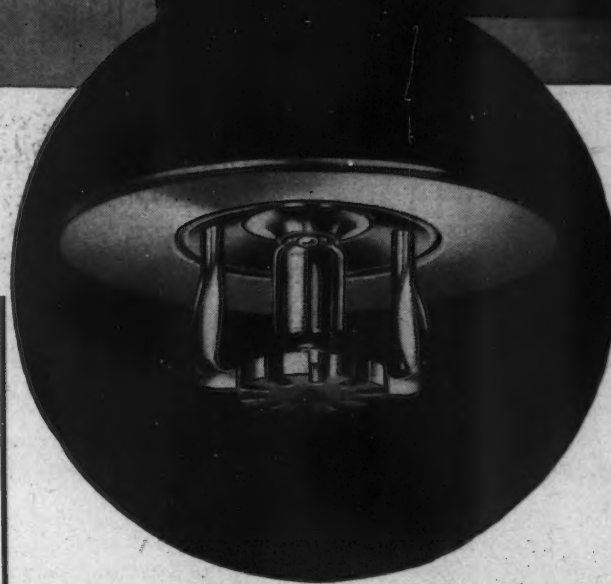


Executive Offices of Bigelow-Sanford Carpet Company, New York. An integral part of the Donald Deskey design is the Grinnell Quartzoid Ceiling Sprinkler.

NEW LOOK for 79 year old Proved Fire Protection

Designed to harmonize with large planes and masses used by architects today, the *new* GRINNELL QUARTZOID CEILING SPRINKLER provides the same dependable protection which has characterized Grinnell Automatic Sprinkler Systems for over three quarters of a century.

For the sake of retaining attractive interiors, the time to plan for fire protection is at the start—with a Grinnell Automatic Sprinkler System. While your plans are still in the drafting stage, get in touch with Grinnell, for there is a system of Grinnell Protection to meet the design requirements of every type of commercial, industrial, and institutional building. Grinnell engineers, long experienced in working with architects, are always ready to help you. Grinnell Company, Inc., Providence 1, R. I. Branch offices in principal cities.



The new Grinnell Quartzoid Ceiling Sprinkler combines full standard protection with almost unnoticeable appearance. This new head protrudes but 1" below ceiling yet provides coverage for both ceiling and floor area. All piping is hidden above the plaster or acoustic panels.



Automatic Sprinkler Fire Protection

The
There's an aff
discussing th
walls and mo
how Kencork
furniture, fab
tribution of i
interesting, u
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to insulate a
and builders
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ings or wall
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Pittsburgh 22
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—58 E. Wash



The feeling is mutual...

There's an affinity, say designers of fine furniture, when discussing the relation between Kencork floors and walls and modern home furnishings. They appreciate how Kencork's golden browns and leafy tans flatter furniture, fabrics and accessories—the decorative contribution of its subtle squares and rectangles—and its interesting, unusual surface. Architects, too, note the physical appeal of Kencork: the comfort of Kencork's resilience—its sound-absorbing qualities—its tendency to insulate against heat and cold. And both architects and builders are often surprised to learn that this cork tile, popularly considered expensive, may now be compared with other floorings or wall coverings of equal durability and quality. To learn the entire story of today's Kencork, consult your flooring dealer. Or write the nearest Kennedy office for informative Kencork color folder and quotations. David E. Kennedy, Inc., 71 Second Avenue, Brooklyn 15, N. Y.—324 Fourth Avenue, Pittsburgh 22, Pa.—1211 NBC Bldg., Cleveland 14, Ohio—1355 Market St., San Francisco 3, Cal.—Bona Allen Bldg., Atlanta 3, Ga.—452 Statler Bldg., Boston 16, Massachusetts—Ring Bldg., 18th & M Streets, Washington, D. C.—58 E. Washington Blvd., Chicago 2, Ill.



The HARMON TECHNIQUE

brings a progressive new era

in classroom interiors



Classroom modernization by the Harmon Technique produces dramatic results on school children.

For example: Ten months' educational progress was made in only six months... important reductions were recorded in eye and nutritional problems... and 30% less signs of chronic infection.

The Rosedale school, Austin, Texas, is a classic example of the Harmon Technique and here again the schoolroom walls and ceilings are painted with Luminall paint. Other factors in the Harmon Technique, aside from painting, are lighting, fenestration and seating.

Luminall paint is ideal for painting walls and ceilings

in the Harmon Technique. It is highly light-reflective—up to 90.6% for white. It maintains this reflectivity because it does not "yellow" or discolor from age and exposure. It diffuses reflected light thoroughly. The colors are formulated to overcome chromatic aberration. It will do a brightness engineering job in evenly distributing light from whatever source it comes.

Ask for a copy of Dr. Harmon's "LIGHT ON GROWING CHILDREN," reprinted from Architectural Record. On receipt of sketches showing dimensions and details of schoolroom, specifications will be furnished according to the Harmon Technique without cost or obligation. NATIONAL CHEMICAL & MFG. CO., 3617 S. May Street, Chicago 9.



**This Rosedale photo
is actually a demonstration**

Here a photographic plate has been exposed rapidly enough to keep 21 youngsters from showing movement—indoors—and without the use of artificial light. Note the clear detail of book covers in rear... note clarity of detail under desks... note the remarkable evenness of light distribution... and notice also the erect easy posture and absence of tension in the children themselves. In such an environment, children can accomplish 10 months' educational progress in 6 months' time. Rosedale school is painted with Luminall.

LUMINALL

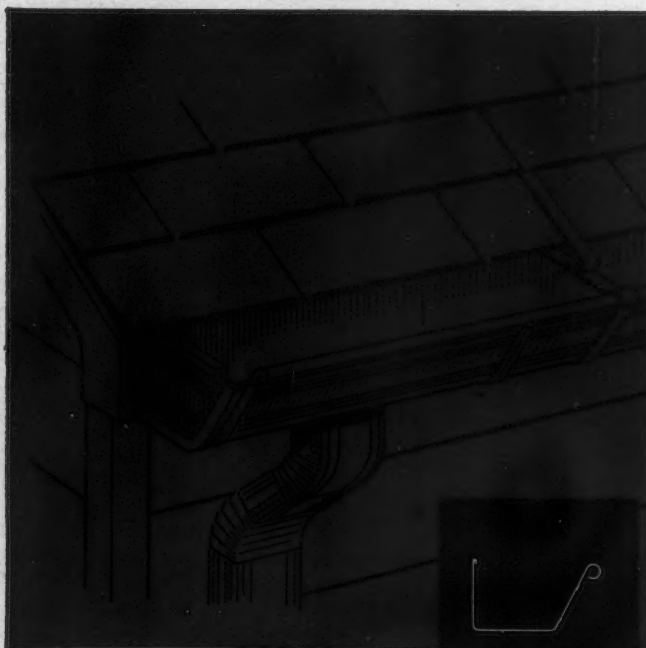
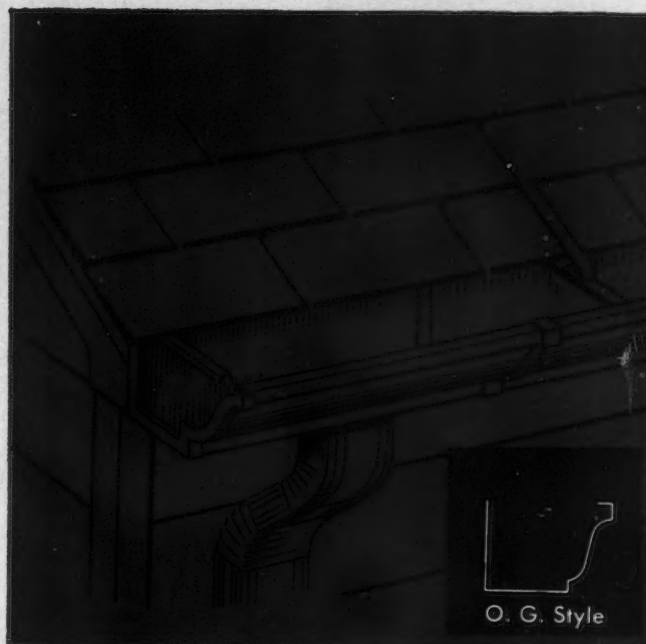
the light-reflective
paint for interiors



REYNOLDS *Lifetime* ALUMINUM GUTTERS AND DOWNSPOUTS

Visually, a non-staining white metal eave trim. Functionally, an efficient rain carrier of rustproof permanence at about half the cost of other rustproof materials. 5" gutters in the designs shown, each in either plain or stippled-embossed finish. Matching downspouts and complete fittings. Application by slip connectors. Write for literature.

REYNOLDS METALS COMPANY
Building Products Division, Louisville 1, Ky.
Offices in 32 Principal Cities



IF YOU SEE RUST
YOU KNOW IT'S NOT
ALUMINUM



REYNOLDS
Lifetime ALUMINUM
BUILDING PRODUCTS

Reynolds Pioneering made Aluminum
Competitive...take advantage of it!

WORLD'S LARGEST PRODUCER OF ALUMINUM BUILDING PRODUCTS:

Shingles, Clapboard Siding, Corrugated and 5-V Crimp, Snap-Seal and Standing Seam Roofing, Weatherboard Siding, Built-up Roofing, Nails, Gutters, Wall Tile, Windows, Reflective Insulation, the "Alumi-Drome" (prefabricated utility building).

Over 50,000 Homes *Dry Built* with UPSON STRONG-BILT PANELS



And most of the 50,000 were designed by architects!

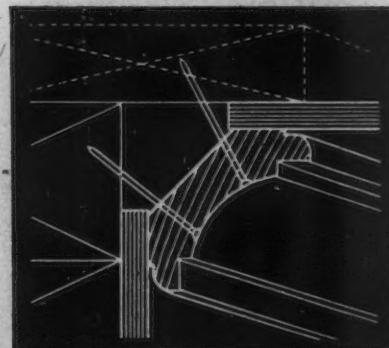
These men, who know from actual use, endorse the beauty, durability and practicality of Upson Strong-Bilt Panels. They like its low maintenance cost. And they report customers highly pleased with *crackproof* walls and ceilings.

Upson Strong-Bilt is a 6-ply panel laminated to an approximate $\frac{3}{8}$ " thickness. Carpenters apply it any month of the year. No visible face nailing. Upson Floating Fasteners, designed to compensate for normal structural movement, anchor panels securely from the back.

Upson dry-built full-wall construction has earned its place in American building. For further information, see Sweet's or write us direct.

Easily Identified By the Famous BLUE Center

The amazing Upson Floating Fastener is nailed direct to studs and joists.



Application of Upson Shad-O-Line Cornice Moulding.



THE UPSON COMPANY, Lockport, New York

Upson 6 ply Strong-Bilt Panels—for new construction. Upson 5 ply Kuver-Krak Panels for re-covering cracked plaster. Upson 5 ply Dubl-Thik Fibre Tile Panels—for baths and kitchens. Upson 4 ply Panels—for general use. Upson Easy-Curve Board—for displays and industrial uses.



*a modern
new wire
dressed in nylon*

This quality branch circuit wire is called Neolay* (Type RU). It is the finest wire ever made.

Why? First it has a nylon covering, for smooth, easy pulling. Moreover, nylon is tough and resists the deteriorating action of oil and gasoline. The insulation of Neolay RU is a combination of Laytex* (90% pure rubber) and Neoprene. That is why it has such a small diameter and light weight, and such superior electrical and physical properties. For example, a chain of 20 gas stations formerly had to change wiring systems every Spring, because of severe damage caused by moisture. After switching to Neolay, these changes were eliminated.

For free sample and additional information write to Wire and Cable Department, United States Rubber Company, 1230 Avenue of the Americas, New York 20, N. Y.

Neolay
RU

*Reg. U. S. Pat. Off.

A PRODUCT OF

U.S. RUBBER
SERVING THROUGH SCIENCE

UNITED STATES
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A WIRE IS ONLY AS GOOD AS ITS INSULATION

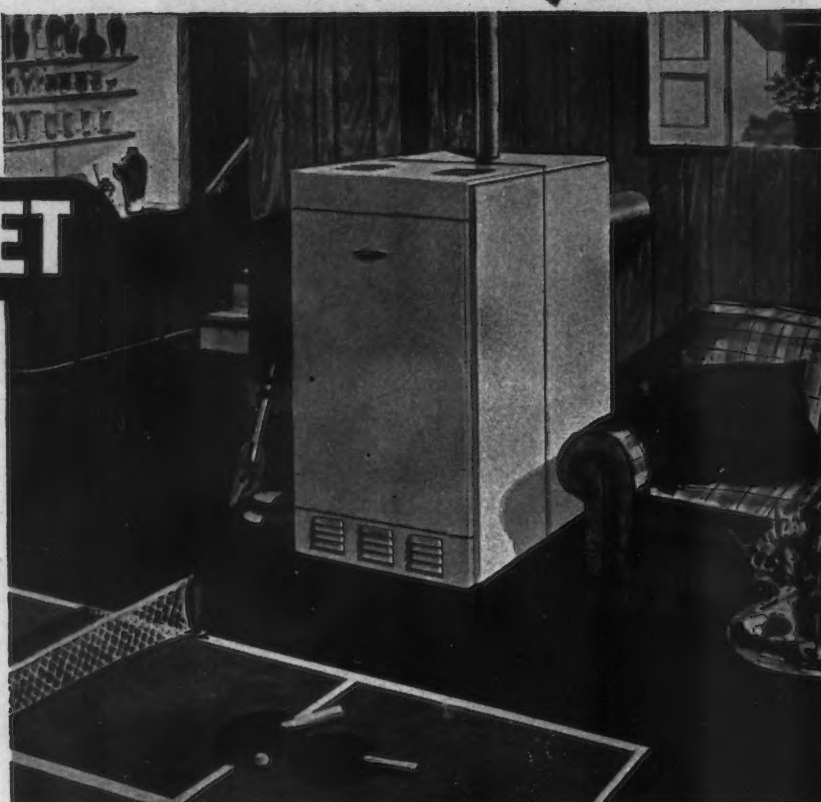
Wires made by U. S. Rubber are Laytex Insulated

Tops in Efficiency

YELLO-JACKET

Burnham's Famous

double
combustion
Boiler



The Burnham Yello-Jacket boiler is engineered and built to give the owner low-cost operation and lasting satisfaction. It features the exclusive Burnham finned DOUBLE COMBUSTION chamber which increases the area of the direct heating surface and makes this boiler a marvel of efficiency and economy.

The Yello-Jacket is an ALL-FUEL Boiler. The

one basic model can, with but minor changes, be converted to burn oil, coal or gas. Equipped with built-in heater for storage or tankless domestic hot water.

Burnham offers you a complete range of sizes in the Yello-Jacket line, from 305 square feet to 935 square feet for steam, and from 490 square feet to 1495 square feet for hot water.

New descriptive literature on the Burnham Yello-Jacket is yours for the asking.

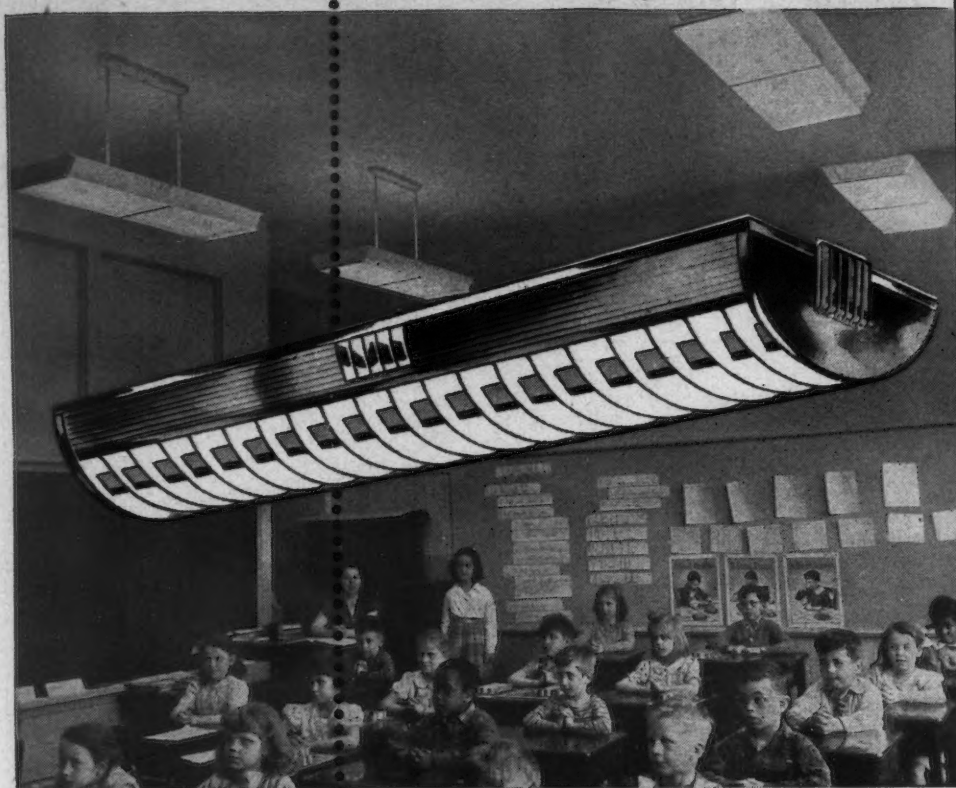
Burnham Corporation

BOILERS AND RADIATORS

Irvington, N. Y., Dept. AR-88



LESS



Here's What the **ALZAK** Process Does...

1. Brightens aluminum reflector surfaces electrochemically to produce lighting efficiencies as high as 83%.
2. Seals the bright, high-efficiency reflecting surface with a durable protective coating of transparent aluminum oxide.

This Alzak surface treatment is an *integral* part of the aluminum reflector shell.

The Alzak Process is licensed by Alcoa only to manufacturers of carefully engineered lighting fixtures.

IN THE CLASSROOM

Light-condition your schoolrooms with top-efficiency Alzak*-processed Reflectors. They are highest in reflectivity efficiency of any standard commercial reflectors.

Your building custodians will like the ease with which Alzak Reflectors are cleaned... a soap-and-water wash keeps the reflecting surface bright and clean, at top efficiency. In school laboratories and shop classrooms, smoke and fumes wash off Alzak Reflectors

easily, do not permanently impair reflectivity.

Alzak Reflectors are aluminum all the way through... no fragile coating to graze, break, or spall if dented, cannot rust red.

Leading lighting fixture manufacturers make Alzak-processed Reflectors in all standard styles and sizes. ALUMINUM COMPANY OF AMERICA, 1474 Gulf Building, Pittsburgh 19, Pennsylvania. Sales offices in 54 leading cities.

*Patented Process

ALZAK REFLECTORS

ALCOA ALUMINUM





**For beautiful,
durable floors
over concrete**

...It's Bruce Block HARDWOOD FLOORS

Prefinished and Unfinished



REG. U. S. PAT. OFF.


■ Bruce Blocks are designed for modern construction. Installation over concrete slab is simple and economical. The blocks are laid in mastic, without nails or splines, directly over concrete. No clips, screeds or wood subfloor are used.

A Bruce Block Floor will last the lifetime of the building in which it is installed. Thus it's far more economical than other floors that wear out or are easily damaged and must be replaced every few years. With its cushion of mastic, this modern hardwood floor is quiet, resilient, warm and comfortable underfoot. It's easy to keep clean and beautiful, too. The patterned design is distinctive and decorative.

Specify Bruce Block Floors on jobs being planned now for future construction. See our Catalog in Sweet's for further information.

E. L. BRUCE CO., MEMPHIS, TENN.
World's Largest Maker of Hardwood Floors

6 Reasons *Why* NATIONAL ELECTRIC SHERARDUCT CONDUIT *is better!*




1. Made of "Spellerized" steel for easy bending and clean-cut threads.

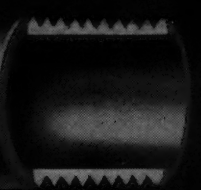
2. Scale-free—inside and out.




3. All rust-forming impurities removed before SHERARDIZING.



4. Zinc alloyed with the steel on all surfaces.



5. All threads have the same zinc protection as the walls.



6. Acid-resisting Shera-Solution baked into the pores for added protection.



PROVED BY THE TEST OF TIME

National Electric Products Corporation
Pittsburgh 30, Pa.



THE HOUSE OF WEATHER MAGIC TAKES

TRANE Meets Demand

for More Convector-radiators

with New Eastern Plant...

To keep pace with the swiftly growing demand for Trane Convector-radiators, The Trane Company has just completed a new plant in Scranton, Pennsylvania. Newest line production methods now double Convector output.

The skyrocketing demand for Convectors began with the standardized Type A Trane Convector-radiator. This is the unit that wholesalers throughout the country carry in stock. Contractors drive in, pick up a truck full (a small truck carries enough units for two average houses), and install them at great savings in time and effort.

The Reason for Convector-radiator Success

Convector-radiators are taking over an increasingly greater part of the radiation market. The compact, lightweight units are easy to stock, easy to handle, easy to install.

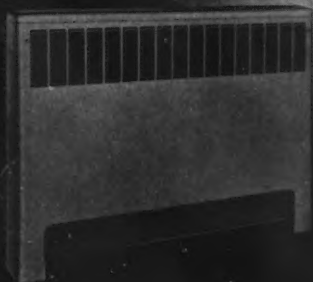
Architects like their sleek lines, their ability to save space. Engineers

like their almost instant response, their reduction of bulk in the heating system.

Consumer appeal, too, is great in Trane Convector-radiators. Home owners like their unobtrusive beauty, their wonderful comfort, their ease of control. Their lower installed cost finds universal favor. The new Trane Scranton Plant is a promise to the public that Convector-radiators will be available in quantity.

The Trane Type A Convector-radiator is just one part of the most complete line of heating and air conditioning products in the industry. So complete is this line that architect, engineer, and contractor can select the right combination of Trane Products for any application. Over 200 Trane Sales Engineers in 85 principal cities offer their constant co-operation.

THE TRANE COMPANY, LA CROSSE, WISCONSIN.
Also: TRANE COMPANY OF CANADA, LTD., TORONTO, ONTARIO. *Manufacturing engineers of heating and air conditioning equipment.*



CONVECTOR-RADIATORS



UNIT HEATERS



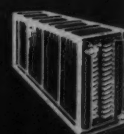
HEATING COILS



PUMPS



HEATING SPECIALTIES



COOLING COILS

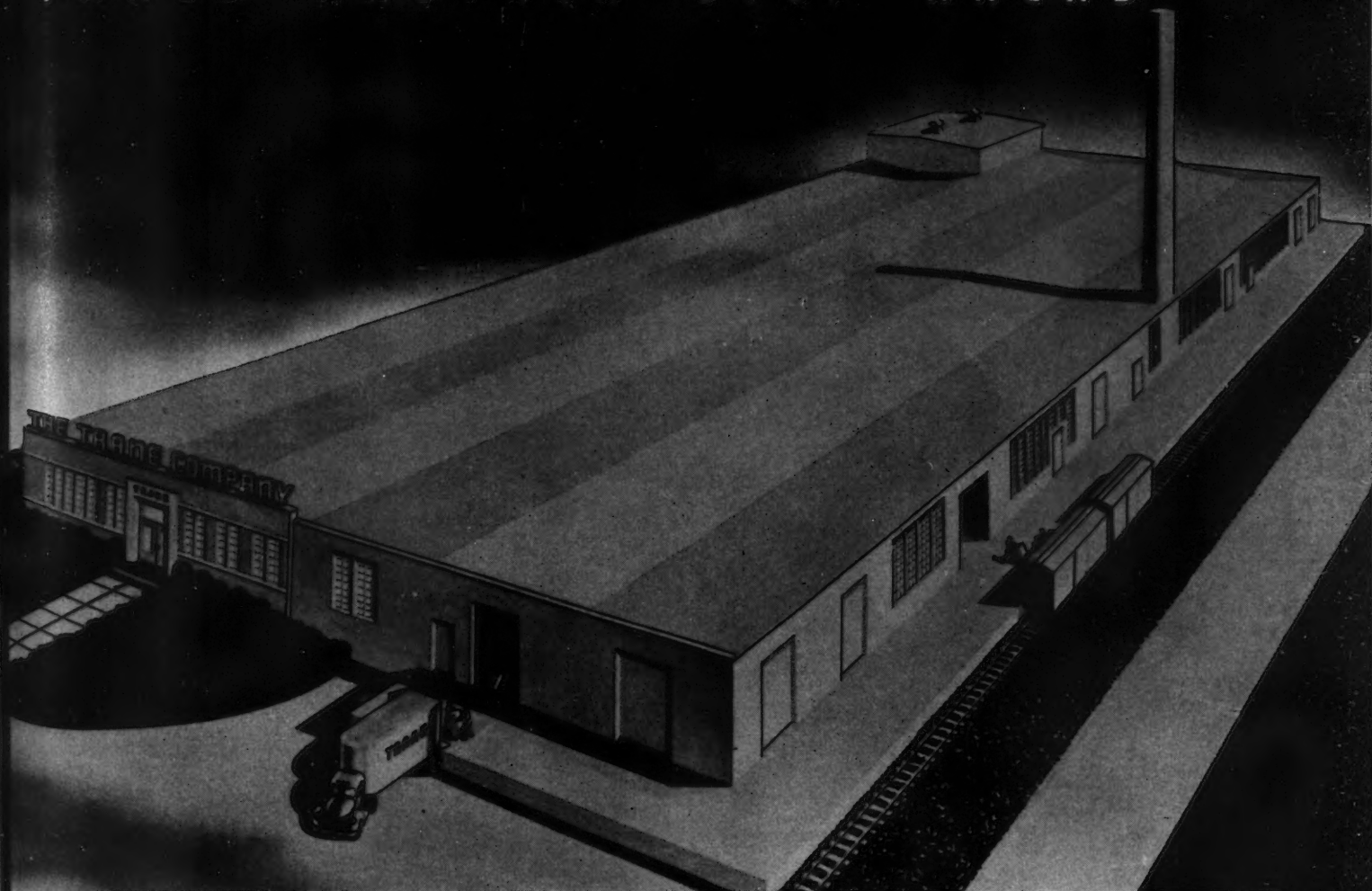


COMPRESSORS



AIR CONDITIONING

C TAKES ANOTHER STEP AHEAD



TRANE Line Production Speeds Convector Output

Specially designed high speed machines turn out parts for Trane Convector-radiators. Automatic presses stamp, draw, and bell Convector fins faster than the eye can watch. In a Trane-engineered process, tubes are mechanically expanded to meet the fins in solid, permanent fin-to-tube-to-fin contact.

Modern conveyor lines bring Convector parts together for assembly. Other conveyor lines automatically clean, treat and finish Convector panels. Yet with this speed and efficiency, Trane engineering standards prevail throughout Trane production. Trane Products are designed best, engineered best, built best.

TRANE

HEATING AND AIR CONDITIONING



AIR CONDITIONERS



FANS



REFRIGERATION EQUIPMENT



BLOWER UNIT HEATERS

1818 HOPE'S 1948

LOK'D BAR FACTORY SASH



LARGE GLAZED AREAS NEED STRONGER SASH

Wear and tear and corrosion, multiplied by smoke and fumes, find in ordinary light factory sash many vulnerable points that invite rapid breakdown. Plant maintenance engineers can prove from their records that Hope's longer-lived Lok'd Bar Factory Sash pays for itself in repair cost savings.

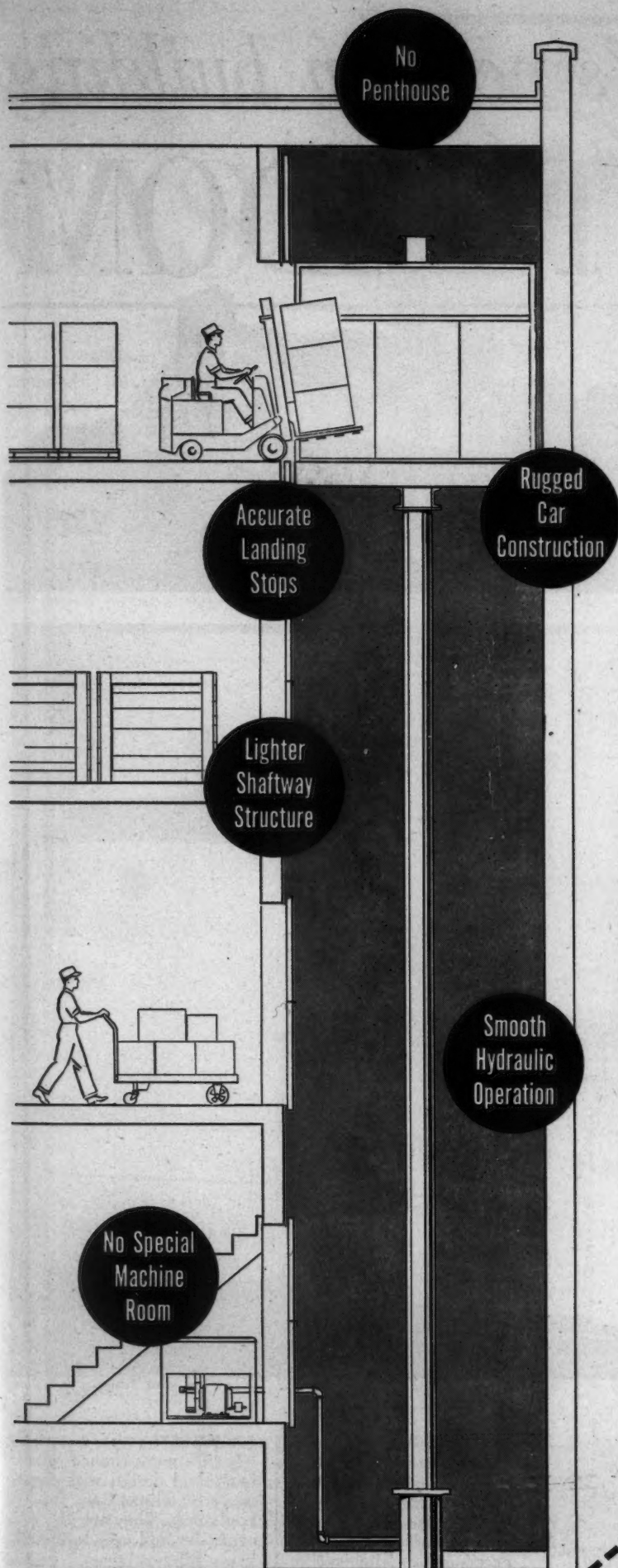
Lok'd Bar design has four points of special importance. (1) Heavier vertical sash bars rolled in a Bulb T section have greater strength for their weight of metal. (2) The exclusive Lok'd Bar joint, with the flat T horizontal muntins threaded thru the bulb T in a firm mechanical union, gives double the strength of ordinary sash. (3) Ventilators, solid welded at the corners, are made in one piece with-

out the attached weathering strips that invite rust or break loose from shock and vibration. Their integral flanges meet tightly on ample bearing surfaces and give permanent weather-tightness. (4) In both pivoted and projected ventilators there is improved construction: solid bronze cup pivots, or heavy steel arms on brass guides.

Air infiltration through Hope's Lok'd Bar Factory Sash is less than one cubic foot of air per minute at 25 miles per hour wind velocity. With their use you gain all the benefits of window walls in industrial buildings... and enjoy them at lower cost in the long run. Write for Hope's Lok'd Bar catalog—details illustrated by full scale diagrams.

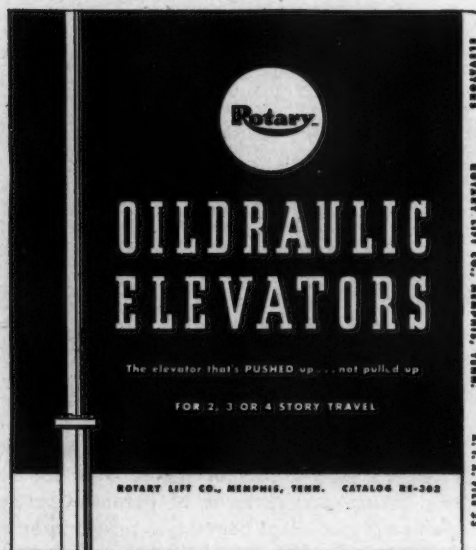
HOPE'S WINDOWS, INC., Jamestown, N. Y.

THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS



A Rotary Oildraulic is the most practical elevator for 2, 3 or 4 stories

You can simplify your plans and streamline your building designs. The Oildraulic Elevator requires no costly, unsightly penthouse because it's *pushed up* from below by a powerful hydraulic jack . . . not pulled from above. This also makes possible a lighter shaftway structure . . . no need for heavy load-bearing supporting columns. No special machine room is required, either, for the compact Oildraulic power unit. Other features that please building owners are smooth operation, accurate landing stops, rugged car construction, and economical service.

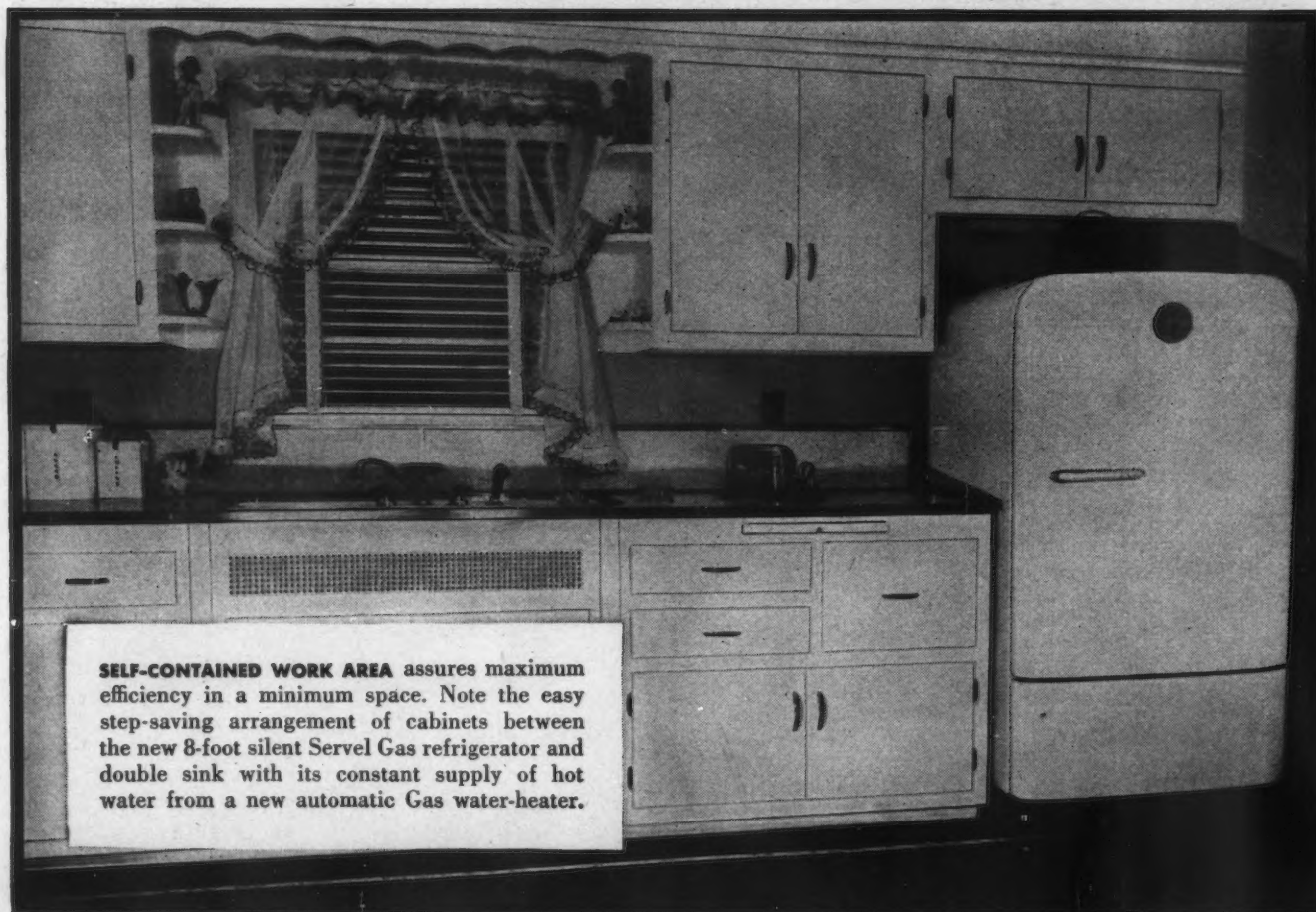


This new booklet
was written for
architects

Send a copy of your Booklet RE-302 (AIA File 33) to:
Name.....
Address.....
City.....
State.....

Wherever there's news in building "NEW FREEDOM"

THE REAL NEWS in this Walcott English type house — completed for Mr. and Mrs. Nicholas DeBiase of Teaneck, N. J. — is its faultless quality throughout. Every detail, from the two-to-one bonded stonework to the breezeway and patio in back, is the finest example of modern planning combined with topflight workmanship and materials. Naturally, with the best construction *outside*, there's a "New Freedom Gas Kitchen"* *inside!*



SELF-CONTAINED WORK AREA assures maximum efficiency in a minimum space. Note the easy step-saving arrangement of cabinets between the new 8-foot silent Servel Gas refrigerator and double sink with its constant supply of hot water from a new automatic Gas water-heater.

*Cert. Mark, Amer. Gas Assoc., Inc.

Here's why *an authorized*
"New Freedom Gas Kitchen"
is such a unanimous success

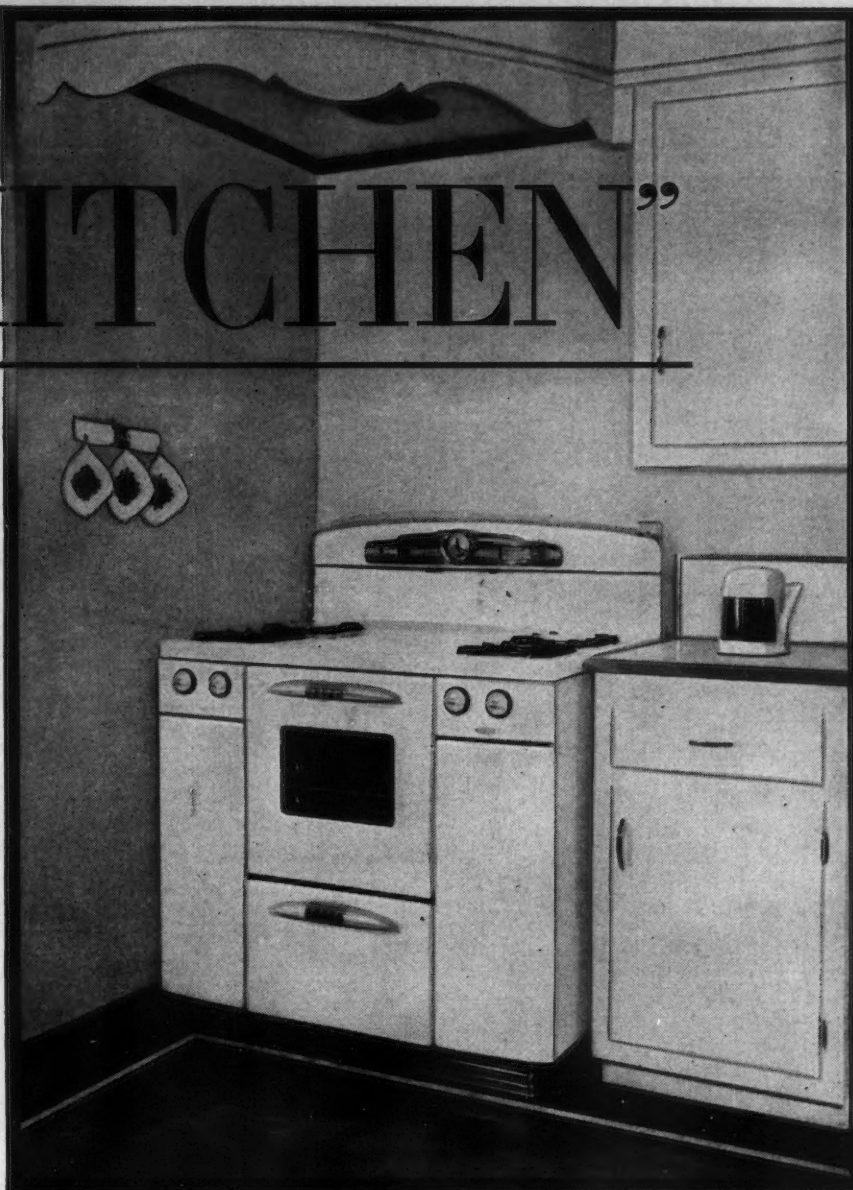
BANKERS say:
"Financing is easier
... because there's
less long-term risk
involved in a house
with a complete 'New
Freedom Gas Kitchen'!"

ARCHITECTS say:
"There's more chance for
individual design with these
new streamlined Gas
appliances. They are in-
expensive and easy to install
in any kitchen layout."

there's a GAS KITCHEN"

BIGGEST NEWS in this "New Freedom Gas Kitchen" is this double-duty cooking unit. It not only features a deluxe automatic Gas range built to "CP" standards but a custom-built ventilating system concealed behind the decorative scalloped valance. (Reminder: Modern kitchen ventilation is most effective with Gas. No other cooking fuel provides the right air-currents to capture and carry away unwanted odors and greasy vapors at their source.)

Here's how easy
it is to meet the
requirements for
"the kitchen that
clinches the sale"

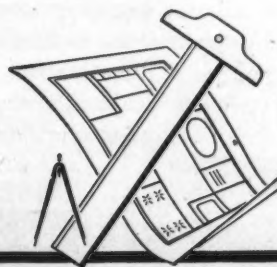
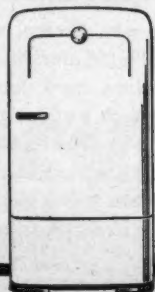


1. SPECIFY: America's finest, fastest, most efficient cooking appliance . . . an automatic Gas range built to "CP" standards.

2. SPECIFY: America's most practical automatic refrigerator . . . a new Servel Gas refrigerator with no moving parts in the freezing system to wear out.

3. SPECIFY: America's only fast recovery hot water system . . . an automatic Gas water-heater in the right size for all needs.

4. SPECIFY: America's most modern kitchen planning . . . the background you would naturally select for the world's most modern appliances run by Gas!



BUILDERS say:
"Selling is a cinch when a house is already equipped with the modern automatic Gas appliances clients want."

BUYERS say: "Deciding on which house we want is simple once we've seen one with a 'New Freedom Gas Kitchen.' We know it's the best for our money now . . . and that we'll get the most for our money if we have to re-sell later."



Free! For new promotional material tied in with nation-wide publicity program . . . see your local Gas company or write direct to:

AMERICAN GAS ASSOCIATION
420 LEXINGTON AVE., NEW YORK 17, N. Y.



Installation study No. A-63
Cafeteria in leading
New England
utility company

CRAM & FERGUSON *choose* **HOOD** **ASPHALT TILE**

For the cafeteria in the recently completed branch office of one of New England's largest utility companies, Cram & Ferguson, well-known architects, chose Hood Asphalt Tile.

More and more every day, America's foremost architects, designers, and builders are specifying Hood Asphalt Tile for various types of installations because they know they can create colorful, pleasing designs...they know that Hood Asphalt Tile will *last*...they know it's economical and that especially for basement rooms or *any* below-ground areas, it will withstand the moisture and alkali always present when concrete is in direct contact with the ground.

For full particulars showing why Hood Asphalt Tile is the choice of architects who *know*, see Sweet's or write today.



NORTON

Adds one more to a long list of
"FIRSTS"



FIRST NAME IN DOOR CLOSERS

- 1st* Pneumatic Door Closer
- 1st* to use all-steel interior parts
- 1st* to use oil as a checking fluid
- 1st* door closer to use the rack and pinion
- 1st* to use synthetic rubber packing
- 1st* to use 2 speeds of regulation on one regulating screw
- 1st* closer to have fusible link arm approved by Nat'l Board of Fire Underwriters

..... AND NOW *1st* WITH A PERMANENT MOLD ALUMINUM SHELL

The new Norton, with light-weight, streamlined, permanent mold aluminum cast shell, is designed to be the most efficient, most dependable and long-lasting door closer of which modern engineering skill is capable. These new units have been subjected to tests equivalent to 20 years of normal use and show no sign of impaired efficiency. We are proud to present the new Norton, the very finest door closer ever to bear the Norton name.

Meets Federal Specifications F.F.-H-121a



NORTON DOOR CLOSER CO.

Division of The Yale & Towne Mfg. Co.

2900 N. WESTERN AVE. CHICAGO 18, ILL.

How to find space in small kitchens...



... in apartments

... in compact homes

... in vacation cottages

Specify a RICHMOND SINK & TRAY... ideal for all three!



THE "TRAXLOR"
42" x 25" and 50" x 25"
For cabinet installations

One Fixture! Many Advantages

Two large working compartments. Drainboard can be reversed or removed. Sink section 7½" deep — laundry tray a full 13" deep, inside!

- Deep tray is used for laundry, dishwashing, even a sponge bath for junior.
- Truly compact design saves much needed kitchen space, provides additional working area.
- Combinations come in either right or left hand tray.



THE "THURMAN"
42" x 25"

Specify the Richmond Sink & Tray unit and do a real service for your customers. When space limitation says "NO!" to the separate laundry tray, opportunity says "YES!" to the compact Richmond Sink & Tray combination. The whiter white* enameled cast-iron unit keeps its initial good looks and makes a perfect match with under-sink cabinets.

*Achieved by special Richmond enamel formula

In the small apartment, the compact house and the vacation cottage, space is at a premium. Each of these places presents an ideal application for the Richmond Sink & Tray combination.

Richmond Sink & Tray combinations are available now. Order from your wholesaler, or write for details to: RICHMOND RADIATOR COMPANY, Dept. AR-8, 19 East 47th Street, New York 17, N. Y.



RICHMOND RADIATOR COMPANY
AFFILIATE OF REYNOLDS METALS CO.



— CLIP AND MAIL COUPON TODAY —

Richmond Radiator Company
19 East 47th Street, New York 17, N. Y.

AR-8

Gentlemen:

I am interested in the New Richmond Sink & Tray. Please send me full details. No obligation, of course.

Name.....

Company.....

Address.....



Plumbing Fixtures:
Heating Equipment:



Enameled Cast Iron Ware



Vitreous China



Forma Glass

Oil and Gas Winter Air Conditioners Gas Boilers Radiators

It's New!... It's Different!...



HONEYWELL
Electronic
MODUFLOW
FOR HOME HEATING



THE NEW HONEYWELL Moduflow Control System, utilizing the magic speed and sensitivity of electronics, is setting a new high standard of heating comfort and efficiency. Yet the entire operation is extremely simple—just a logical application of electronics to tested and proved control principles. Study these features. They tell the functional story of Electronic Moduflow.

- Electronic Chronotherm combined with new Averaging Thermostat insures accurately uniform temperatures.
- Outdoor Electronic Thermostat which anticipates weather changes.
- Electronic Control Center which governs the operation of the system.
- Extreme Sensitivity of Control combined with Instantaneous Action.
- Continuous Supply of heat does away with unhealthy drafts and cold floors.

In operation, these features mean the continuous heat supply is minutely adjusted without "time lag" to exactly offset heat losses, whatever they may be—large or small. So give your clients the benefit of this entirely new concept of comfort. Specify Electronic Moduflow for every home you design. The system can easily be installed on any automatic heating plant—warm air, hot water or steam. For complete data just address a card to Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.



73 BRANCHES FROM COAST TO COAST WITH SUBSIDIARY COMPANIES IN: TORONTO • LONDON • STOCKHOLM • AMSTERDAM • BRUSSELS • ZURICH • MEXICO CITY

WHICH WAY LIES FREEDOM?

FOUR current situations point up the adage about eternal vigilance being the price of freedom — in these cases freedom for creative, independent architectural design and practice. They lend added weight to the sympathetic but forthright warnings of Miles Colean in his able discussion of "The Architect's Stake in Private Enterprise,"* for government agencies, national, state, or local, inevitably follow the pattern he describes. Then the struggling architects (and architecture) must submit to the bureaucratic strait jacket from which only a Houdini could escape.

Two of these governmental agency plans for architectural control came in for their full share of discussion at the alerted A.I.A. Convention at Salt Lake City and appropriate resolutions were passed expressing the need for greater creative freedom for architects in private practice. But such resolutions cannot be made effective without the active support by the Chapters and individuals in a concerted program. The Veterans Administration seeks to have its own architectural bureau, some 900 strong, to design future veterans' hospitals, reversing its wise procedure of employing private firms. A glance at the perspectives of the hospitals already designed † by private as compared with administration architects shows what can be expected if the VA is successful in its efforts with the Congress.

The second need for greater freedom which the Convention discussed, is in the FHA housing standards and their interpretation. While minimum standards are certainly desirable to insure adequate accommodations, frozen patterns discourage better and more ingenious solutions in plan structure and facilities, and stultify attempts to improve them.

The third is like unto the second, for while some architects find the hospital planning standards set up by the U. S. Public Health Service a boon in time-and-thought-saving, and embrace them in toto, there are others who find them frustrating. They would prefer to develop new solutions rather than take them all cut-and-dried, and thus hope to advance the art and science of caring for the sick.

And the fourth is in the nature of a *fait accompli* — the state of California has its own bureau to perform the architectural services "needed for California's \$250,000,000 state building program for the construction of new hospitals, institutions and office buildings." And the Recruitment Section of the State Personnel Board is circularizing widely for architectural designers and draftsmen, each to take a "permanent civil service position at an attractive salary." This is certainly in competition with architectural firms in private practice, firms which could render the state efficient, even inspired service.

We believe with Miles Colean that the interests of both the public and the profession are best served by architects working in the freedom inherent in a private-enterprise system rather than by national, state, or local bureaus which offer full architectural services in addition to their normal functions as clients or owners stating requirements, establishing standards and programs, financing and maintenance.

*ARCHITECTURAL RECORD, June, 1948, pp. 97-99

†ARCHITECTURAL RECORD, Oct., 1947, p. 104.

Kenneth K. Stowell

EDITOR



Kenneth C. Welch Photos



Top: President Douglas Orr greets ex-President James R. Edmunds at the reception at the Country Club as Mrs. Orr greets Morris Ketchum. Above: President Orr, ex-President Ashton and Leon Arnal watch James Edmunds and gold-medalist Maginnis

Glenn Stanton, new Vice President, explains it all so simply to the quizzical Mr. Maginnis at the President's Reception



THE EIGHTIETH

SALT LAKE CITY proved to be a happy choice of location for the Eightieth Convention of the American Institute of Architects, for here "every prospect pleaseth" and somehow man does not seem so vile. Both the weather and the setting were ideal and our hosts most cordial, gracious, and thoughtful. Everything possible was done for the pleasure, comfort, and contentment of the 800 and more officers, delegates and friends who were on hand. All left with the wish that they could have stayed longer and the hope that they might soon return.

The business of the convention was carried on with smooth dispatch, all according to Hoyle or Roberts, thanks to the careful planning and the hours of toil the Board had expended on its Report. The seminars dealing with various phases of the fundamentals of design were made an integral part of the program rather than pre- or post-convention events. The social events were most enjoyable interludes and the sightseeing was eye-opening and awe-inspiring in variety, interest, and beauty. All in all, it was a most memorable occasion.

It is naturally impossible even to attempt to summarize the addresses or the discussions of the various seminars. These will undoubtedly be covered in detail

Dean Koyl, Dean of Pennsylvania's School of Architecture, is amused at newly-elected Fellow Leon Arnal's skepticism



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CONVENTION OF THE A.I.A.

Salt Lake City, Utah



in the published proceedings so that those who were unfortunate enough to miss the personal presentation of the ideas propounded will be able to peruse them at their leisure.

The Convention opened June 22nd with words of welcome by Hugh C. Lewis, President of the Utah Chapter, by George Cannon Young, Regional Director of the Western Mountain District, and by Hon. Earle J. Glade, Mayor of Salt Lake City. This was followed by the presentation of the Fine Arts Medal to John Marin and the Honorary Corresponding Membership awards to Sir Patrick Abercrombie, Auguste Perret, Ivar Justus Tengbom, and George Gray Wornum.

The first seminar presented an illuminating and comprehensive summation of the "Physiology of Shelter" by Dr. C. E. A. Winslow. L. Morgan Yost was moderator.

The second seminar lecture was held after the luncheon at the Starlite Garden atop the Hotel Utah, headquarters of the Convention. The bright, glass-walled, canopied garden looked out across the plain and to the surrounding mountains, and thus provided a perfect setting for Victor Roterus' lecture on "Geographic Bases of Planning." Louis Justement was moderator of this interesting seminar.



Kenneth K. Stowell Photos

Two proper Bostonian Fellows discuss certain topics of mutual interest. (Magazines' Art Directors sometimes insist that one caption balance another, so these few words are added here to fill in space to equal that of the caption on the opposite page)

Morris Ketchum of New York, in a serious mood, evidently has asked a pertinent question that makes one scratch and think

Program-arranger-extraordinary Walter Taylor takes up some amusing if very important matters with moderator L. Morgan Yost





Washington headquarter's Ned Purves may be finding it difficult to convince Clarence J. Paderewski, but undoubtedly he is right



A study in esthetics, or the appreciation of beauty. Joseph D. Leland with Charles Cellarius and Miss Sally B. Cortright



Affable editor Henry Saylor produces some of his famous "asides" with James Gambaro, P. M. Hoffman and Harold Bush-Brown



Architect-moderator-photographer Kenneth C. Welch astounds two Californians, John Leon Rex and John Savage Bolles

Mrs. Thomas D. Broad of Dallas is justly proud of her modest husband, newly-elected Director of the Gulf States District



"The Esthetics of 20th Century Architecture," a seminar, proved a stimulating, erudite, perhaps even esoteric, discussion of the philosophy of esthetics from the point of view of a professor of philosophy, a professor of English, and a practicing architect—respectively Dr. Russell Ackoff, Dr. Carl W. Condit, and Edgar I. Williams. B. Kenneth Johnstone, Chairman of the Committee on Education, A.I.A., was the moderator.

In the evening the delegates were treated to the beautiful color slides taken by, described by, and illustrating the philosophy of, Alden Dow, setting forth "The Evolution of a Design."

The business of the Institute and the Report of the Board occupied the morning session Wednesday, June 23rd, which was followed by the luncheon lecture on "Regional and Local Planning" by Robert B. Mitchell, with Louis Justement again moderator.

Three seminars followed in the afternoon. The one on "Dwellings" was largely devoted to the subject of "Design for Safety" which was thoroughly covered in all its aspects by D. Kenneth Sargent and Dr. C.-E. A. Winslow. L. Morgan Yost was Chairman. A joint seminar on "Urban Planning" and "Retail Business Buildings," under Chairman Kenneth C. Welch, was held in the afternoon and "The Neighborhood and

Educators Harold D. Hauf of Yale, Henry Kamphoefner of North Carolina and Leopold Arnaud of Columbia get together

Salt Lake City Tribune Photo





Pietro Belluschi, now F.A.I.A., with Marshall Shaffer of the U. S. P.H.S. and George C. Young, Director Western Mountain District

Shopping Center" was presented by Morris Ketchum, Jr., and by Pietro Belluschi. Stanley McCandless discussed the problems of store lighting.

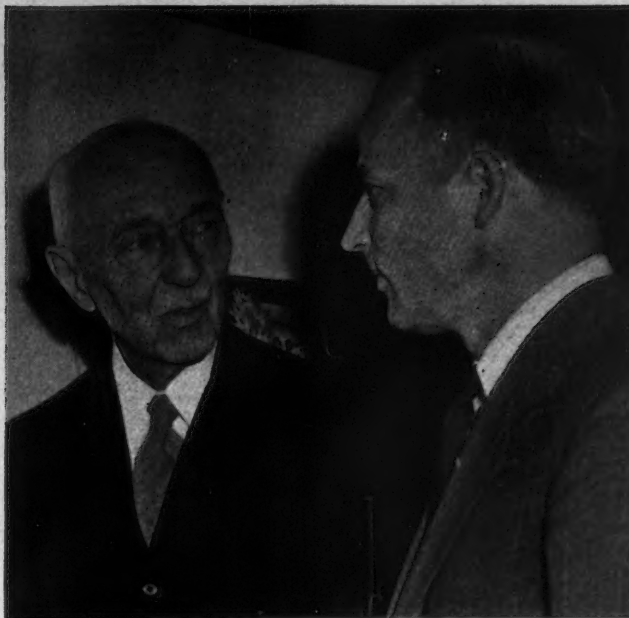
The President's Reception was the highlight of the day's social activities and busloads of delegates and friends journeyed to the beautifully situated Country Club. The expansive terrace, overlooking the green and fairway and far beyond to the snow-capped peaks above the canyons, was an ideal setting for this gracious gathering. All needs for refreshment were bountifully supplied by oft-refilled glass and plate. Conversation grew as expansive as the vista and the occasion was thoroughly enjoyed. Those who lingered on were enchanted by the magnificent sunset, a fitting climax to a delightful reception.

In the evening, Prentice Bradley explained the "Potentialities of the Grid" in the seminar on "Modular Design," L. Morgan Yost, Chairman, and made his points clear with numerous lantern slides.

Thursday morning was given over to the reading and discussion of the Report of the Board and the seminars were resumed at the luncheon meeting where, under the chairmanship of Louis Justement, Thomas J. Kent, Jr., explained "Site Planning Principles."

(Continued on page 174)

Mr. and Mrs. Raymond Ashton find Princeton's Dean Shirley Morgan's explanation most amusing before the Annual Dinner



Charles-Edward A. Winslow discusses the physiology of shelter with B. Kenneth Johnstone, moderator of the first seminar

Salt Lake City Tribune Photo



Ross Shumaker of Raleigh, M. E. Green of Harrisburg and M. H. Starkweather of Tucson present their registration credentials

The flash bulb, not the conversation of Temple H. Buell, had the seemingly soporific effect on ex-President Charles D. Maginnis





PLANNED FOR TERRACE LIVING

House for Mrs. Paul Kingsley, Pacific Palisades, Calif.

J. R. Davidson, Designer; Landscaping by Ernest Wertheim

LIFE in this suburban Santa Monica home obviously centers on the spacious flagstone terrace stretching across the entire garden side. Living and dining room, breakfast room and master bedroom all open directly to the terrace and share with it a broad view of distant hills and the Pacific beyond the owner's lemon grove. Alternating sliding and stationary 6 ft. 9 in. glass panels form the wall along this side of the house. A three-section awning, 40 ft. long, shelters all but a

small corner of the terrace, yet is easily adjusted.

The plan is simple and direct, keyed to an easy hospitality and a southeast exposure. A local restriction forbidding a house of less than 2400 sq. ft. resulted in an unusual but welcome amount of storage and closet space (see plan on page 95). Exterior walls are stucco, foundation is reinforced concrete. Floors are cement, with rubber tile in bathrooms, kitchen and breakfast room. Heating is by a radiant floor panel system.



All major rooms, including the master bedroom (far left of photo on opposite page), living room and breakfast alcove, open directly to the terrace. Awning is maroon and white, terrace furniture apple green metal frame with natural string



AUGUST 1948

Ceiling of entrance hall (right) is fir plywood, forming a cove for indirect lighting toward living room. Walls are dark cocoa, carpet is a very light cocoa pebble weave. A screen of translucent glass separates hall from living room. Main entrance (below) is flanked by plant containers in obscure glass alcoves



Julius Shulman Photos

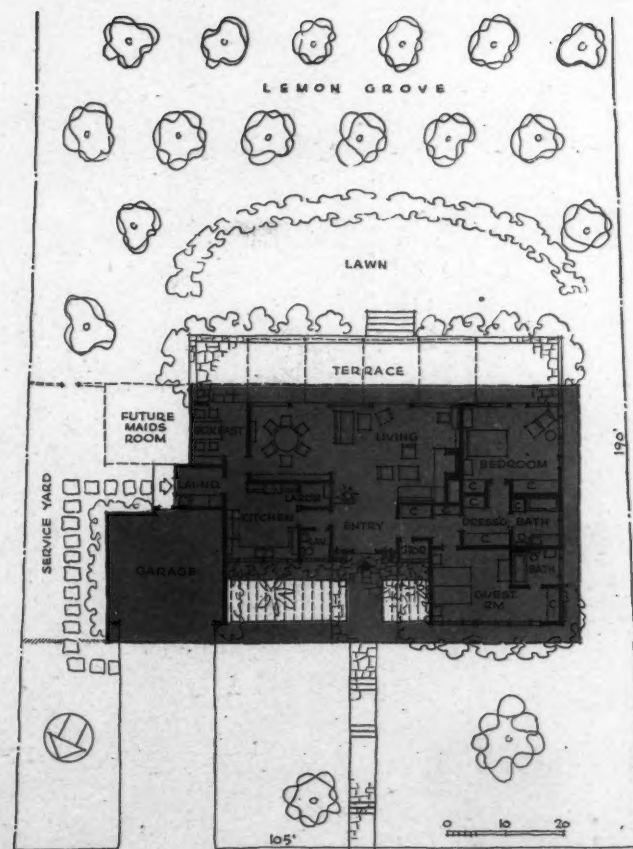


The f
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AU



The front of the house (above) is French gray stucco; soffit of roof overhang, covering the flagstone walks, including wood trim and "egg crate," light gray; entrance door, dark gray. Plan (right) shows the generous storage and closet space





Conve
liquor
gray.
hall a
and c
cabine



Living room (above and left) has built-in desk and bookcase in walnut and built-in davenport. Walls and ceiling are light gray, carpet is light cocod, armchair is rich green. Fireplace and hearth 16-in. ceramic roof tiles laid in white mortar. Light cove above davenport is fir plywood, slightly stained gray and waxed, continuing entrance hall ceiling of same material.

Convenient for hospitality is the built-in liquor cabinet in walnut, lined with light gray. Translucent glass screen separates hall and living room. Dining room walls and ceiling (below) are light gray; liquor cabinet wall in foreground is cocoa



Julius Shulman Photos



Master bedroom (right and across-page) opens directly to terrace, has plenty of storage space. Walls and woodwork are in pale rose, curtain and bedspread in natural, carpet a dusty rose pebble weave. Kitchen (below) has eggshell woodwork, red work top and splashback, yellow and white striped curtains, light tan marbleized rubber tile flooring

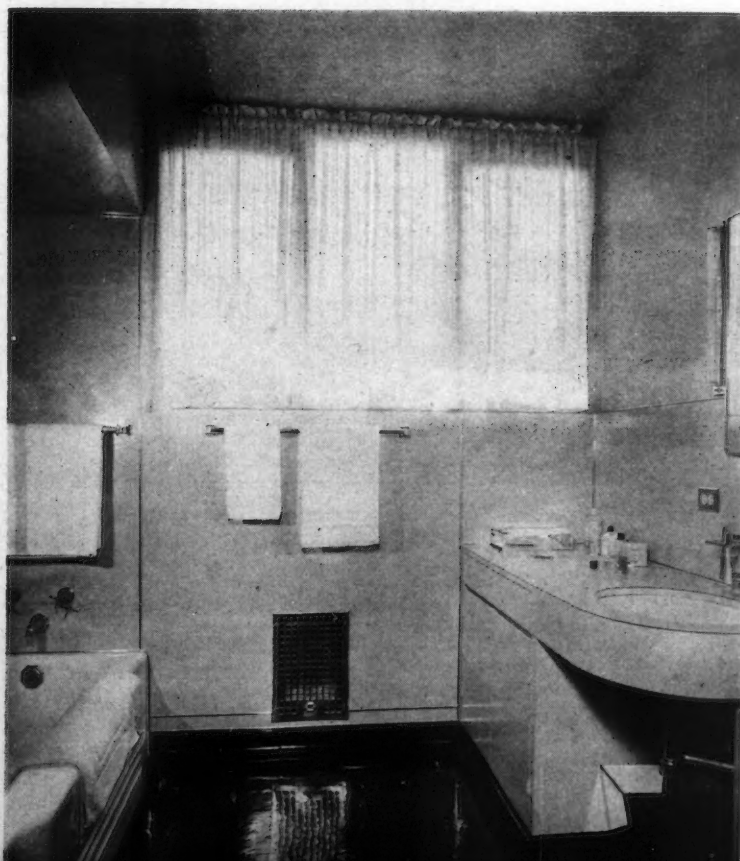


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Julius Shulman Photos

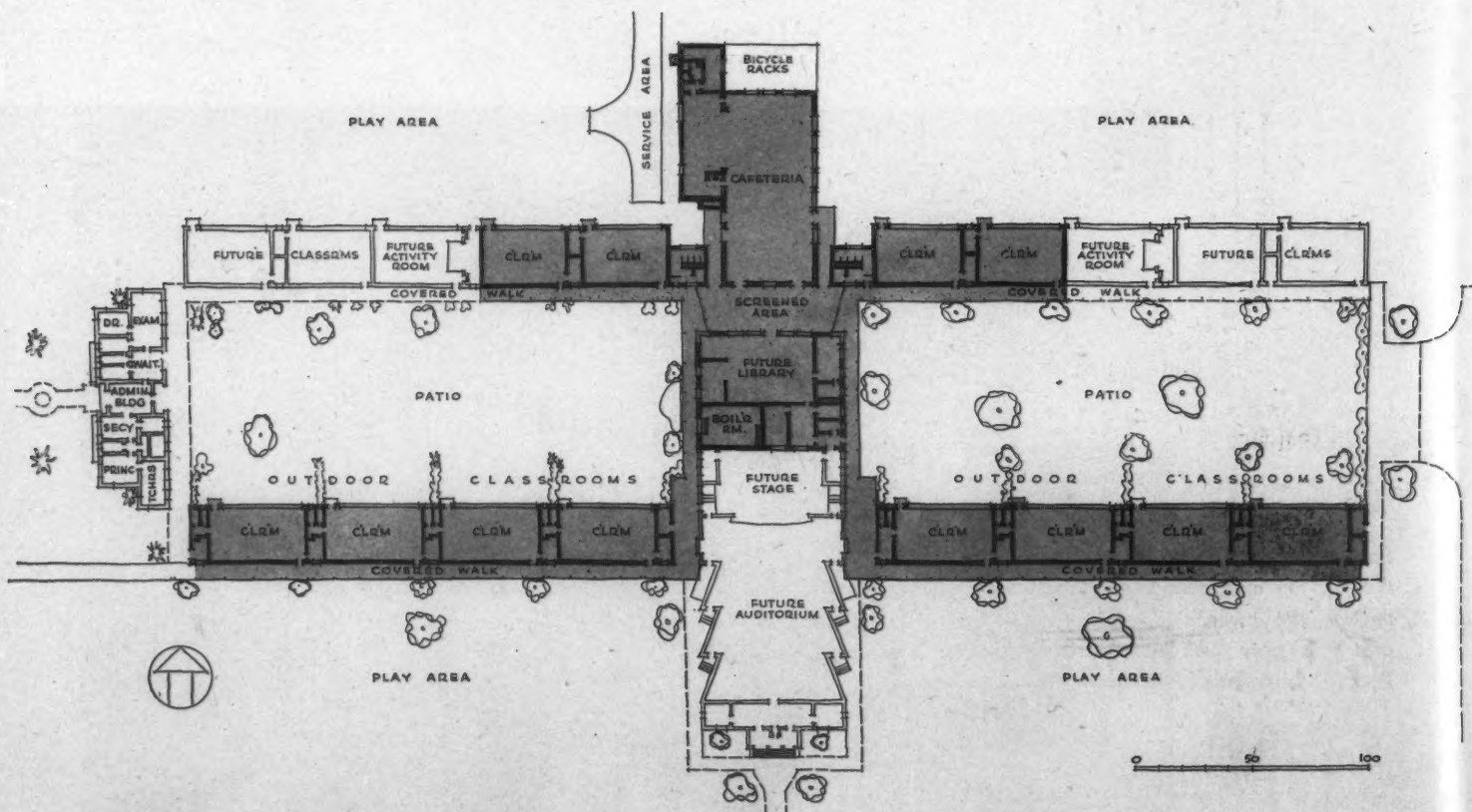
Each of the two bedrooms has its own bath, that for the master bedroom (right) reached through the owner's dressing room. Walls are light gray with white metal molding; floor is rubbertile in black and white



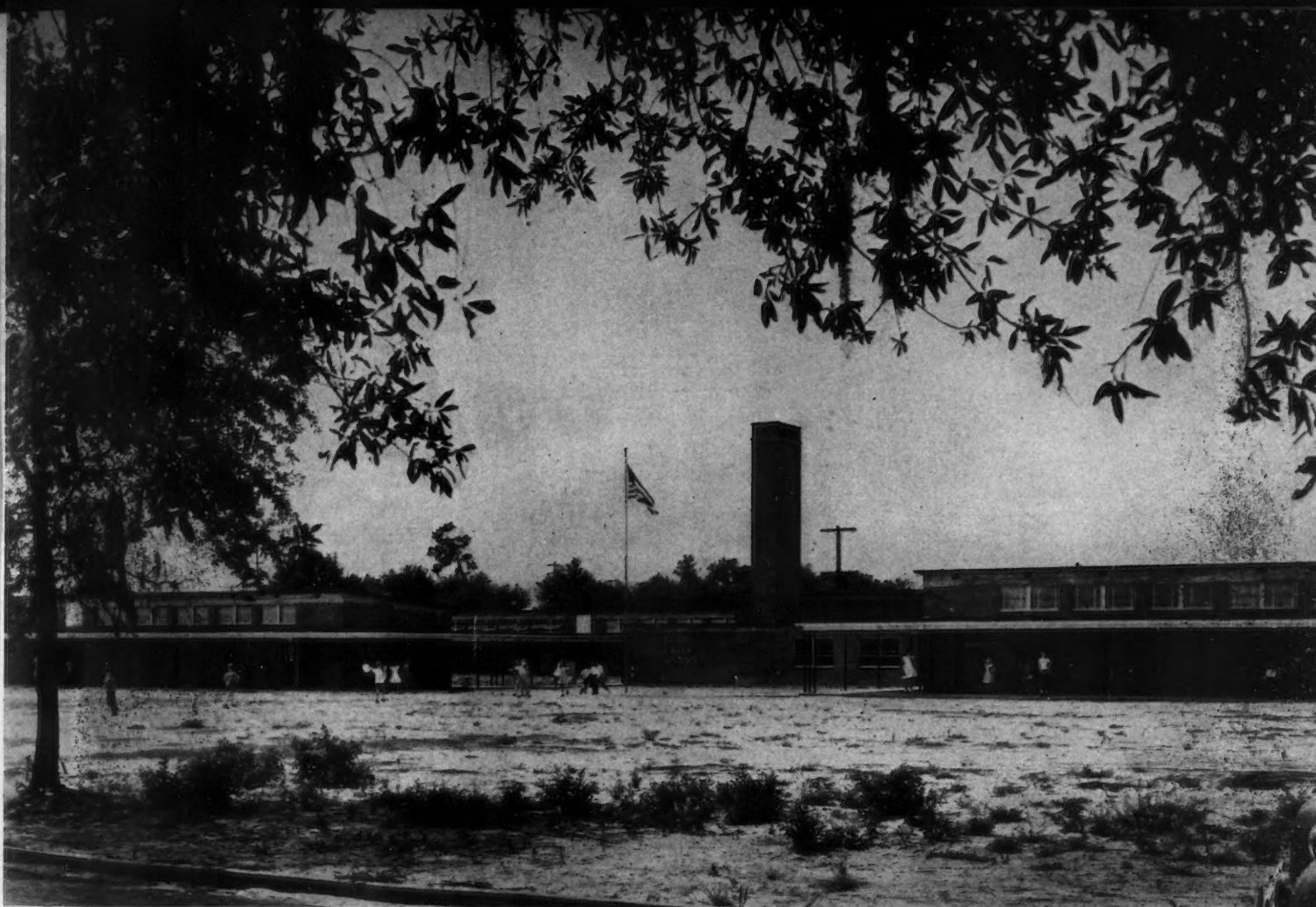


Kemper Photo

Model and plan, this page, indicate complete projected school; part now built is shown in the plan in gray. Opposite page, view of part completed



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Burgert Brothers Photo

A PIONEER SCHOOL IN THE SOUTH EAST

Fern Creek Elementary School, Orlando, Florida

L. Alex Hatton, Architect

A PIONEERING DESIGN in its locality, this bilaterally lighted school went forward under special permission of code authorities, to progress beyond an obsolescent building code. The part shown in gray in the plan was built in 1947-8 for \$209,750 at 70½ cents per cu. ft., or \$8.75 per sq. ft. (walkways figured at ¼ cu. ft. or ¼ sq. ft.). The finger plan or campus plan arranges common facilities, such as the cafeteria-library and auditorium, in a central trunk unit running north-south; classrooms are in wings branching out east and west. The present administrative rooms can be con-

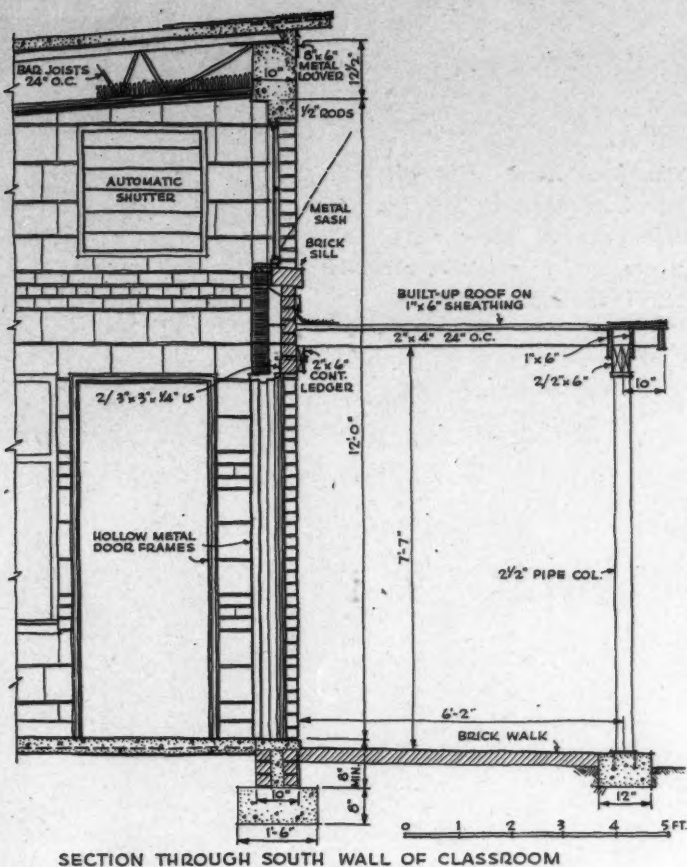
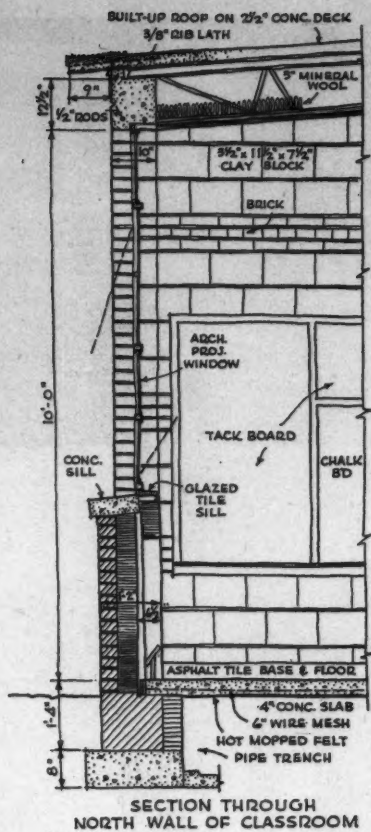
verted without much disturbance into future dressing rooms off the auditorium. The patios between classroom wings will not be used for play space but will be landscaped. Primary grades occupy the southern wing of eight classrooms, and have space for outdoor teaching immediately adjacent.

The fully developed plan will contain 16 classrooms, an auditorium seating 700, cafeteria (3 shifts of 200 each), a library, small clinic, and bus loading center. Construction is of cavity-wall masonry and fireproof concrete roof supported on bar joists.



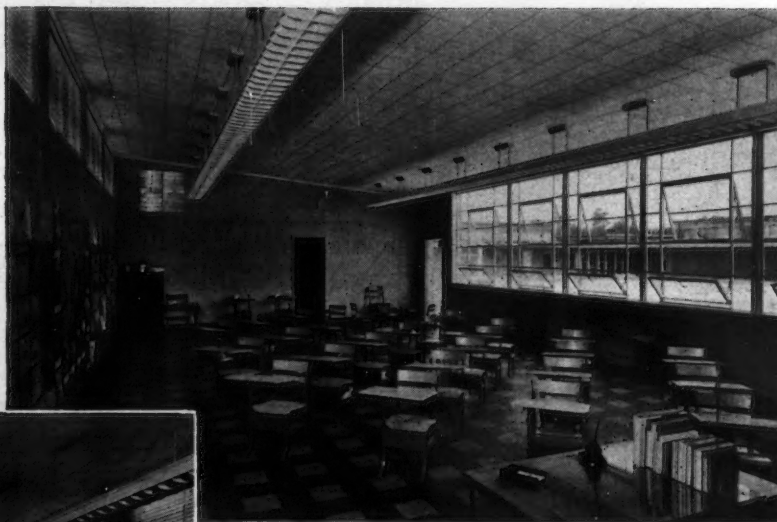
Cavity wall construction uses 4 in. of red brick for outside face, 3 in. air space, 4 in. of brick and concrete block in interior. (Detail shows openings left for ventilation.) Cost of bar joists only slightly exceeded local lumber cost. Ceilings are of acoustical tile on wooden furring; walls of soft pine yield tack space. Plastering omitted except in toilet rooms and the kitchen, where it is used in conjunction with ceramic tile





Classroom interiors are gay, painted on brick or block in two shades of green according to light source; entry doors canary yellow with black design around door knob. Chalk boards are green glass. Ventilation by attic fan in cloak room (ceiling 7 ft. 8 in.). Each classroom has conduit for audio-visual aids, is wired for inter-communication system from office

Burgert Brothers Photos



Cafeteria feeds three shifts of 200. Heating of school is by low pressure steam from central boiler room. Unit heaters are used in cafeteria, recessed convectors in classrooms



Burgert Brothers Photos

Steel pipe supporting walkway canopies are occasionally doubled to relieve monotony and trellised for plants. Main classroom windows are steel architectural projected; elsewhere steel double-hung



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Julius Shulman Photos

STORE FOR THE BROWSING MUSIC LOVER

Gateway to Music, Inc., Los Angeles, Calif.

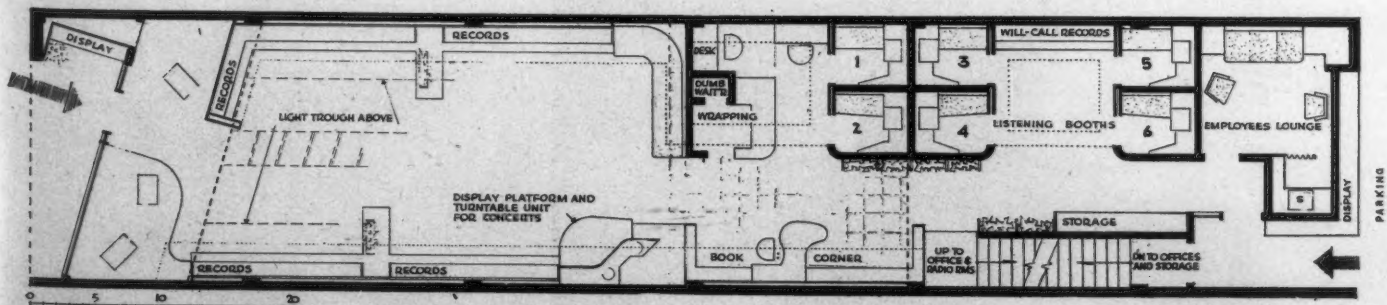
Rolf Sklarek, A.I.A., Architect

PARADISE for the music lover is this hospitable Los Angeles store where he may browse among books and albums and listen to records for as long as he likes. He even is treated to a welcoming cup of coffee when he enters!

Specializing in phonograph records (serious music only), with the emphasis on imported recordings from all over the world, the store also sells radios and tele-

vision sets. A book department operated by Brentano's rounds out the merchandise offered with books on music and art and music scores. The store has a well established clientele and does not depend on street traffic; it has a weekly radio program of recordings on a local station, supplemented by free record concerts monthly in its own quarters.

Requirements which the architect had to meet in





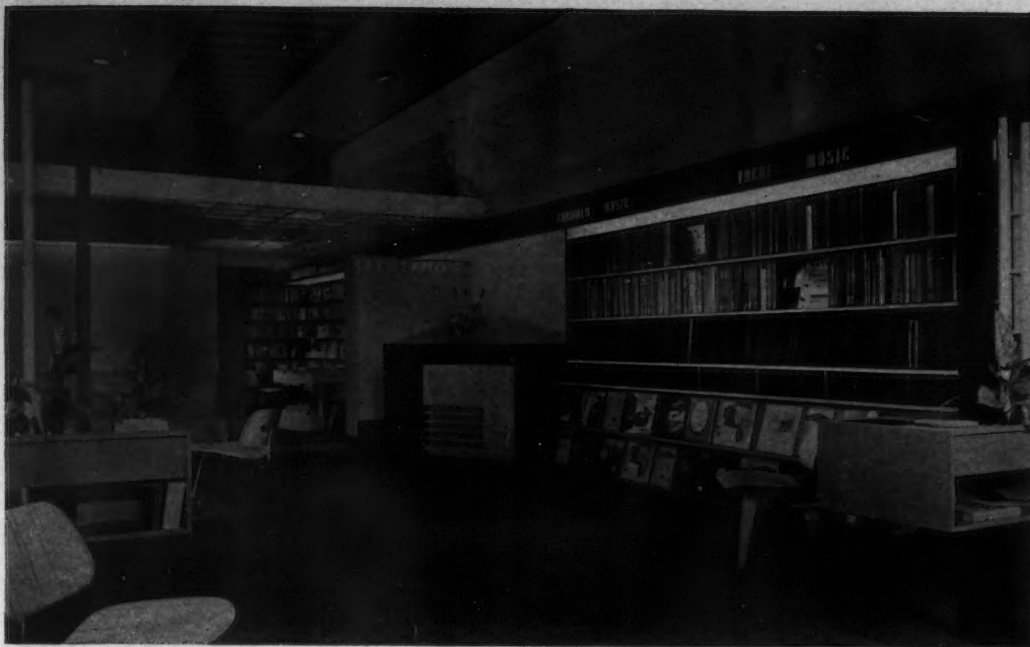
Julius Shulman Photos

For economy's sake all fixtures were made of soft wood and painted. Record shelves are lined with black battleship linoleum to prevent scuffing of albums. Strong colors are used throughout: light cove facias are red, egg-crate ceiling over rear portion is yellow, carpet green, walls are yellow, red and green



Records
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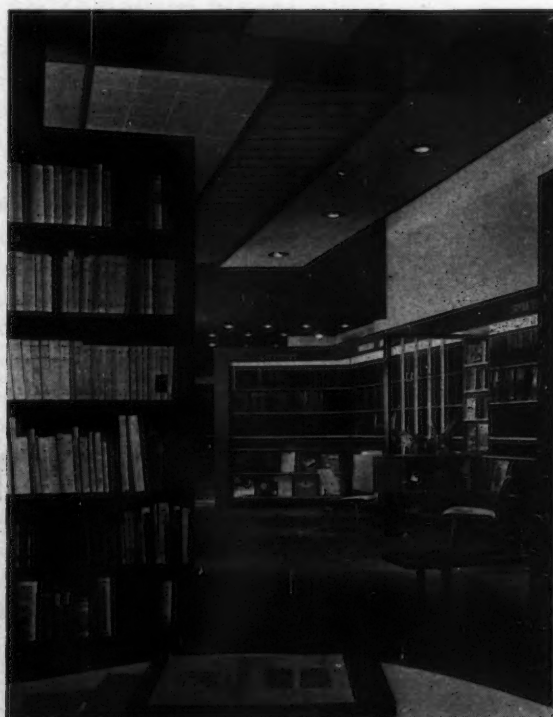
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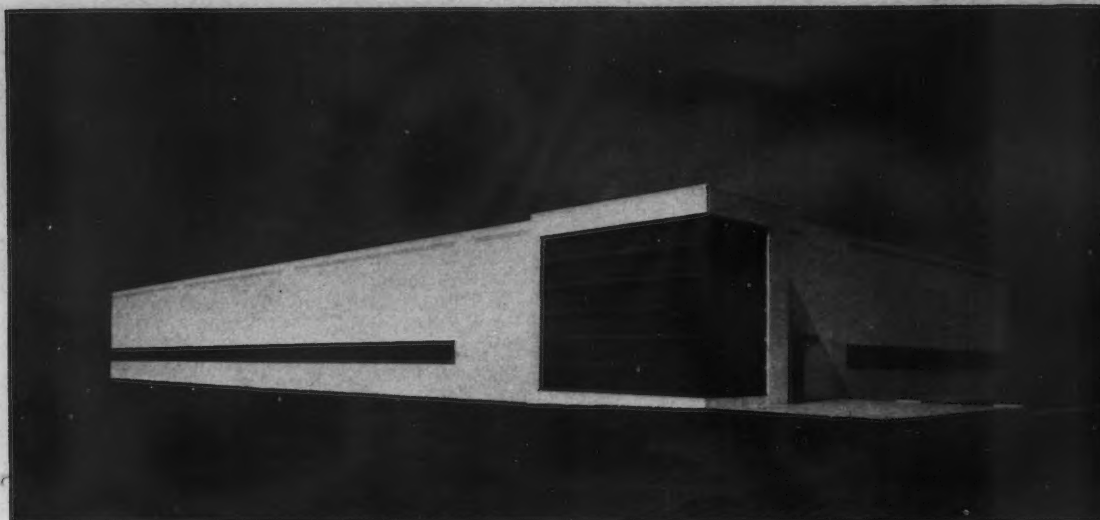


Records are lighted directly from concealed fluorescents in light cove above record shelves, general illumination is from concealed fluorescents in upper light trough. Spots in light trough are used for accent

remodeling the 20- by 100-ft. premises for the Gateway included considerable storage and shipping space for the import and export of records, and a large main sales floor open enough to provide space for the monthly concerts. The existing full basement and the mezzanine over the rear third of the store were used to good advantage in meeting those requirements — the former to house the offices, shipping and storage facilities, and the latter for the radio and television department, of only secondary merchandising importance. The whole ground floor was given to record and book sales, and the front section

was kept completely open by the omission of sales counters. Patrons select their albums directly from the shelves, using a special shelf at approximately counter height for their tentative selections. The wrapping desk and the book corner are strategically located at about the center of the store, controlling both front and rear entrances. A concert platform containing dual turntables for the monthly concerts and display space for special radio cabinets is also used by visiting authors and musicians autographing books and records at parties (see photo at left, below).





Underwood & Underwood Illustration Studios

AN ENLIGHTENED LOOK AT A FACTORY

One of the Nation's Most Progressive Industrialists Defines the Ideal

Factory Building in Terms of his own Concept of Management

GENERAL ROBERT JOHNSON, fabulous head of the Johnson & Johnson enterprises, has said that the vast majority of all American factories are obsolete and ought to be razed. Such a damning generalization is based partly on his own high standards of factory buildings and partly on his concepts of industrial management. The two go hand in hand in the Johnson organization, for the definition of what constitutes a good factory building springs from a peculiarly enlightened concept of modern management.

One major tenet, for example, is that a factory should be small. If the enterprise is large, like the Johnson enterprise is, production should be broken up among small units. If this idea seems to run counter to the familiar concept of efficiency and economy of mass production in the mammoth plant, it is consistent with

two major principles by which the Johnson organization keeps its balance sheets in healthy condition.

One of these is that the worker must be considered to be a human being as well as a production unit; the other is that plant managers are also human beings. The task of the big boss is primarily one of arranging matters so that manager and worker can meet on common ground, so that the manager can run his own show without being swamped under too much direction from the main office, and can spend his time with his workers. That meeting ground is most likely to be, says the General, a small factory, ideal in its standards of working conditions, beautiful in appearance, conducive to pride in both manager and workers, conducive also to close contacts between management and worker.

General Johnson sums it up by saying that American

INDUSTRIAL BUILDINGS

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NUMBER 140

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Industrial Tape Corp. Photo by Transfilm Studio

Nothing is more inspiring, or cheaper to acquire and maintain, says the Johnson management, than grass and trees. A landscaped setting for a factory conditions the worker, even before he has parked his car, to the Johnson philosophy of good housekeeping and self respect

business should reverse its present trend toward concentrated central management, and begin to "delete, delegate, decentralize and, if necessary, delouse the central staff." It is practically religion in the J & J family that a plant manager be an individual, responsible as such for his own unit in the Johnson world, be it manufacturing sterile bandages or Diesel engines.

There is no essential difference in standards for a plant making bandages and one making engines, according to this philosophy. There are six basic essentials to industrial management, says Johnson: (1) good housekeeping; (2) simplicity and beauty of plant and facilities; (3) human engineering; (4) decentralization; (5) emphasis on youth; (6) cost consciousness.

It is not so hard now to understand the General's statement that the large percentage of American factories are obsolete. It is not so difficult, either, to understand why J & J industrial plants differ widely from each other, each newer one reaching ever higher in the scale of architectural and engineering achievement.

The human engineering which is so important in all of this is not achieved by ignoring the more technical sciences. Indeed in building a new plant the J & J organization strains to the utmost the ingenuity of the man who is to manage the new plant, the architect and engineer, the process engineer, the machine manufacturer, and all other consultants who might make a con-

tribution to a factory scientifically engineering for human engineering, not forgetting the color consultant and the landscape architect. The modus operandi for locating and designing a new plant is pretty well codified; here it is as given by F. N. Manley, director of construction for J & J factories.

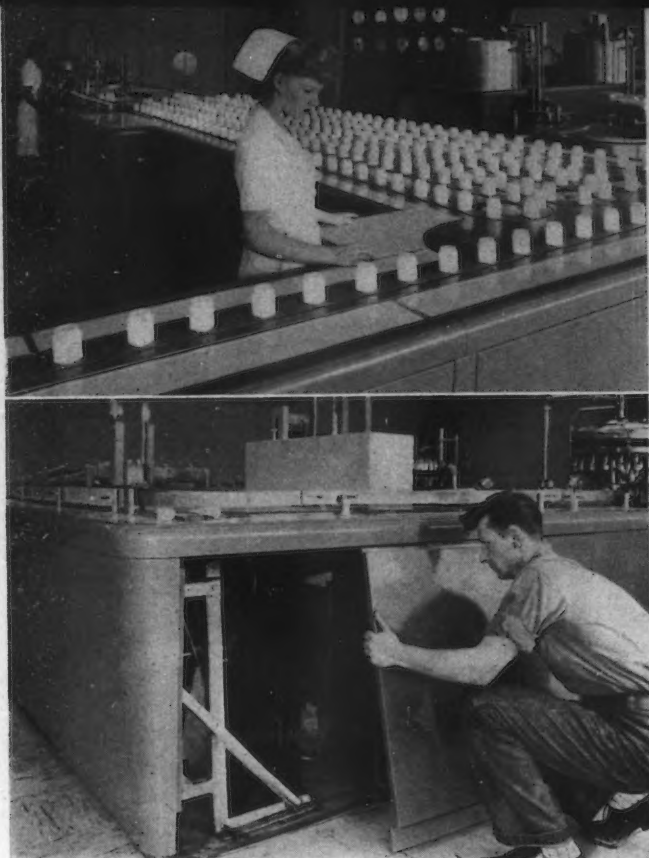
Selecting the Site

First of all in the selection of a site is a general understanding of the kind of plant to be built. It will be a one-story building. The determination is rather positive on this point. It will be out away from congested city areas, away from any "industrial slums." Johnson does not want to operate in industrial slum conditions. It is largely a matter of environment, as said before, and the effort is to get away from prearranged environments, lest management and worker alike be affected.

So the site will tend to be in a country area, with the expectation that workers will drive their own cars to it. It will be a large site, for these same reasons plus some others reasons of cold economics.

The rule as to size is to figure out present square foot requirements, also those seen for 10 and 15 years in the future, then multiply by 6 to get site requirements. This would be much too liberal for a metropolitan site, but not for a country location.

Factors in this size-demand are several: First, it takes



Photos at left: Wm. R. Frutchey. Above Ezra Stoller

three and a half acres for a railroad siding with a right-angle turn. Next, it requires one acre to park 100 cars; if a multiple shift is contemplated, more parking space will be required.

Perhaps the most important reason for a large site is flexibility for expansion. The design must be such that the plant can be extended on any of its four sides, so that extensions can be made without the need for reshuffling existing layouts.

And finally, in the Johnson thinking there is nothing prettier or less expensive to maintain than grass. And nothing quite so conducive to contented working as a pleasant, landscaped, parklike setting. Before the worker has even parked his car he has been conditioned to order and beauty.

Then come considerations of market, utilities, transport, labor, and perhaps publicity value if the site can be near a main highway or a main rail line. Then starts the search, and it is likely to be a long one.

Designing the Plant

The concept will rely heavily on the architect to express in the building the note of orderliness and the appeal of esthetics. The plant need not be designed for the most expensive materials (though marble was used for a whole façade in one plant), but it must have that quality which is recognizable in capable architectural design. This compositional expressiveness is not taken lightly by the J & J organization.

The building will be as open as possible in plan and arrangement of processes. Partitioning is to be used only as a last resort. Here again environmental reasons enter into it—the aim is always to clean up a dirty process rather than to isolate it. So minimum parti-

The Johnson passion for order and for design extends to the production machinery. Every possible working part is to be enclosed in something colorful and easy to clean, so that the girls on the assembly feel the fitness of the nurses costumes they are given

tioning does more than preserve flexibility—it becomes another urge to orderliness and good planning for good housekeeping.

This housekeeping fixation is pressed heavily on the designers. All materials in the building must constantly remind everyone in the plant that he himself has obligations to the standards bestowed on his workshop and the dignity given his job. Materials and surfaces must not only be easy for him to maintain; they must also be a demand on his sense of responsibility. As a matter of fact there is cold-cash reasoning here: maintenance is left to individual workers wherever possible. Cleaning up is not a separate payroll item. It does not mean that everything is sterile, gleaming white; on the contrary, pleasant, comfortable color schemes are expected to add to the general atmosphere.

The same strain is put upon designers of process equipment. The general rule is to enclose everything possible in clean, colorful coverings, hiding all possible working parts and oily bearings. Usually an industrial designer is retained to modify machine designs and work out color schemes, all to the end that girls can operate them safely and simply, without soiling the nurses' uniforms that management provides for them.

Column spacing will be fairly wide, for flexibility. The column pattern will be square if possible, so that it does not dictate the direction of machine layouts. There is no standard column spacing, but 35 ft. is fairly common.

The plant definitely will have windows. The first reason is the J & J belief that some daylight is desirable in working light. Psychology provides the second reason. The theory here is that it is normal for the worker to have daylight in daylight hours, this going a little deeper than the usual statement that workers

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Wm. R. Frutchey Photo



Above: In the new plants there is no employees' entrance. The workers are welcomed through the reception lobby with as much consideration as, say, the visitors who come for inspection trips. Right: If there is an automatic machine, the plant will have it

need to feel in touch with the weather and not shut away from nature. Windows are not relied on for ventilation; they are usually fixed double glass, solar glass if required.

Air conditioning will be extensively used. Acoustic materials will frequently be used. Lighting will be the best that can be engineered. The greatest attention will be given to the floors—they "have never found one good enough," and they have tried them all. They like a concrete floor, provided it is laid smooth enough; if a glasslike surface can be had, the floor will be very comfortable. The floor will be as light in color as possible.

Employees will be given many "extras." They will not be luxurious or expensive, and all will contribute to the welfare that is practically a religious fervor here. There will be good rest rooms, and a lounge for card games or table tennis. There will probably be a speaker

system for music, for employees' functions, and for training or corrective purposes. There is a story, for example of this last, that broken glass plagued one plant manager to the point of distraction. Finally a personnel expert got the employees to stage some playlets over the plant speaker system. The skits ridiculed the worker who was unable to handle glass. The breakage promptly dropped by 85 per cent.

And finally, there probably will *not* be a separate employee's entrance. Employees are presumed to be "as good as" the management personnel or the visitors who are so frequently brought to J & J plants. Workers come in through the front door, through the handsome lobby, past all the display material. What better way to add dignity to the worker's job? Perhaps this idea, more than any other, portrays the Johnson theories of plant management and factory design.

The J & J factory will always be a one-story building, in the center of a large plant, expansible in any of the four directions



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**Chevrolet-Flint Assembly Plant,
Flint, Michigan**

**Chevrolet-Flint Division,
General Motors Corporation**

Assembly plant consists of Office Building (across-page, top), Main Assembly Building (larger views), Customers' Delivery Building (below), Car Loading Building, Shipping Building, Boiler House, Pump House, Acetylene Building, Car Storage Yards and Test Track

Hedrich-Blessing Photos



TH AUTOMOBILE FACTORY

Albert Kahn Associated Architects and Engineers

J. A. Utley, General Contractor



HERE IS A PLANT that belies the pessimistic prediction of a couple of years ago that the war had left too many great factory buildings, that no more would be needed for years. The automobile industry needed production facilities, and it is not in the habit of building its assembly lines in converted hand-me-down plants.

This is really a group of buildings, even including separate buildings for loading finished cars, all of which

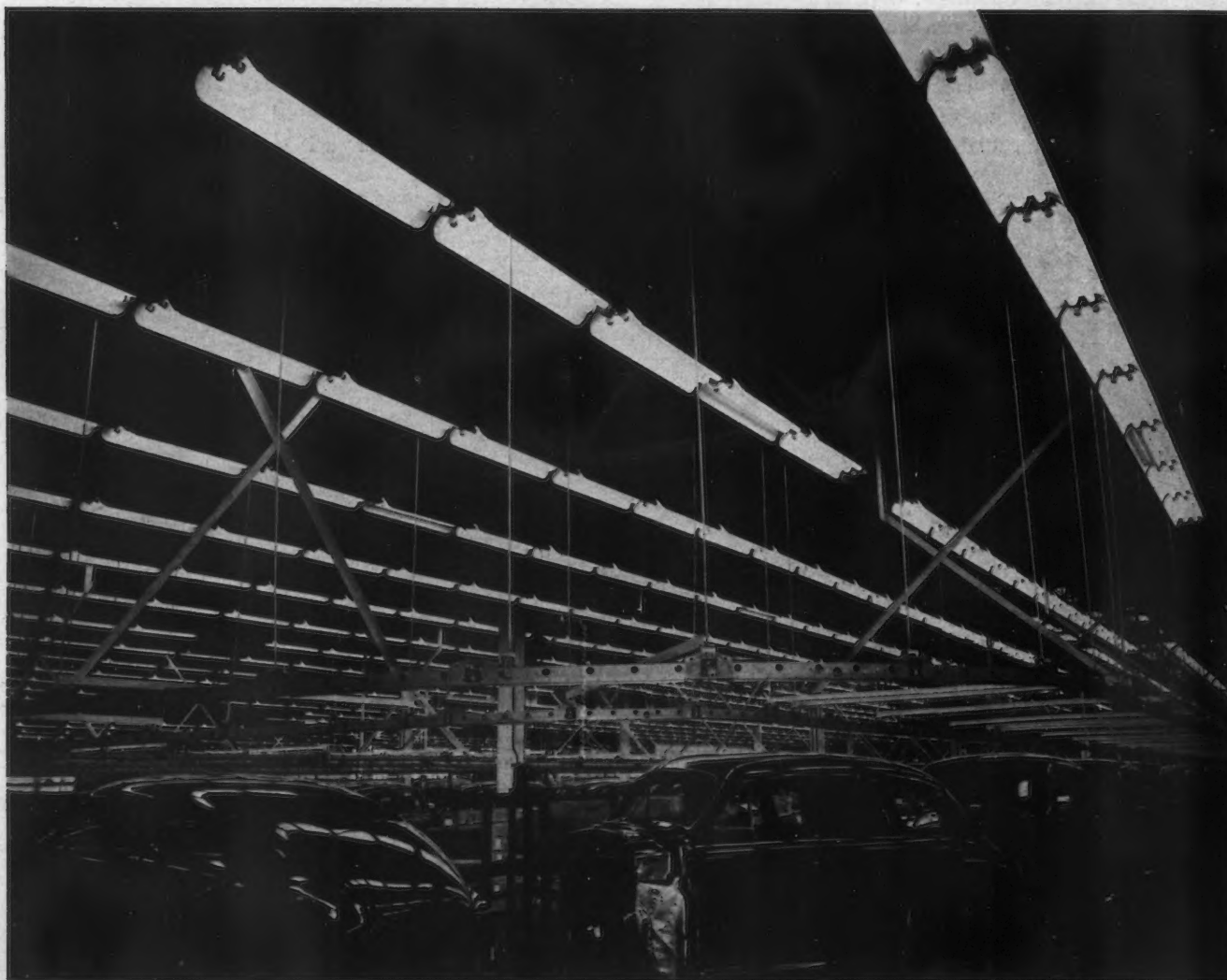
have the Kahn stamp on them, that long flowing appearance that makes modern architecture really impressive. It will produce 60 cars and 20 trucks an hour, in something over a million and a quarter square feet.

The Assembly Building, the main one, is of structural steel frame, two stories and partial basement. Second floor is of concrete on steel beams. Roof has steel trusses, steel purlins and is protected with cement tile





Main reception room and an executive's suite in the Office Building section



Hedrich-Blessing Photos

Fisher Body shares the main building with Chevrolet, taking 429,000 sq. ft. of a total area in this building of 1,100,000. The two divisions have their own departments, even including separate employee facilities, until bodies meet chassis for assembly

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roofing. Enclosing walls are of concrete, brick, gunite, with steel sash. Interior walls are usually brick. The column spacing is generally 50 by 50 ft., with one 50 by 60 ft. bay running the length of the building. Clearances are 16 ft. on the first floor, and 14 on the second. In railroad bays and areas where the second floor has been omitted the clear height is 37 ft.

Employee Facilities

Complete facilities have been provided, in both the Chevrolet and Fisher areas, for handling, preparing and serving food in basement cafeterias.

Locker rooms, following the now-familiar Kahn system, are located off the main basement corridor. In this scheme workers enter via basement corridors which

take them directly to their stations with a minimum of lost time and confusion. Locker rooms have wash fountains, dressing and shower rooms and toilet facilities. Rooms have glazed hollow tile walls, ground finished floor and base.

In the Chevrolet section, first aid and personnel sections are combined and located in the basement area. First aid includes examination rooms, X-ray, operating, physio-therapy treatment, ward and waiting rooms. Similar facilities are provided in the Fisher section; here they are on the first floor.

Employee parking area, comprising a quarter million square feet, has black top paving and flood lighting. Since the assembly building houses both Chevrolet and Fisher divisions, parking facilities were placed for

The main production line has a two-story bay with 60-ft. span. In general body manufacture is a second-floor operation, in an assembly line which meets main production line at point where car is ready for its body. Small parts also feed downward from second floor





What looks like a small-city power house is the compressor room

their employees at north and south sides respectively. Workers enter these sections through a control house, thence through tunnels to the basement facilities.

HEATING AND VENTILATING

The various buildings are heated by different systems. There is a separate power house with three 60,000 lb. per hour boilers operating at 175 lb. pressure. A 12-in. high-pressure main serves boiler house equipment and building requirements through a tunnel.

The assembly building is heated generally by vertical type unit heaters with blower type units at the doors for quick recovery, all operating at 30 lb. pressure. Basement employees' areas are heated by a system of forced air. The office building is heated by convactor radiators in wall-hung cabinets, supplied by a system of forced hot water. Water temperature is controlled by a combination of outdoor bulb and indoor bulb to maintain a constant relation between water supplied to radiators and outside temperature. There is also a zone system in the hot water converters. All condensate from

The Car Loading Building handles only part of the shipping; there is a separate building for loading cars onto trucks, and a third for customers' delivery, where accessories are installed on cars which are to be driven away



various heat low pressure via the tunnel

The ship direct fired and control head to land

Various systems and The cafeteria hot weather of the office be supplied systems, and for cafeteria

Manufact department 100 per cent air change any hazard the ceiling

The Boiler supplies steam and "low

various heating systems, involving high, medium and low pressure supplies, is returned to the boiler house via the tunnel.

The shipping building is heated separately, with a direct fired hot air unit complete with oil burner, fans, and controls. From this unit supply ducts are run overhead to large doors and working areas.

Various types of ventilating and air conditioning systems are used in the several buildings and areas. The cafeteria in the office building is air conditioned in hot weather, has tempered air supply in winter. Rest of the office building is designed for air conditioning to be supplied later. Employee areas have ventilating systems, and air conditioning may later be installed for cafeteria and hospital areas.

Manufacturing areas such as motor rooms, paint department, pipe tunnel, and so on, were supplied with 100 per cent of outside fresh air, giving these areas one air change every three minutes. Exhaust units remove any hazardous fumes, picking them up near the floor or the ceiling, depending on the density of the gases.

The Boiler House, connected to other buildings by tunnel, supplies steam at 175 lb., reduced as required to "medium" and "low" pressure for operating equipment and heating

Each of these three boilers, coal fired, has a capacity of 60,000 lb. of steam per hour



Hedrich-Blessing Photos



FUNCTIONAL COLOR IN

IN A RECENT article, a member of an able firm of architects who have designed many outstanding industrial buildings in the United States referred to the use of planned color in manufacturing plants as being under study by his organization, to be further employed if results of the study were encouraging. A professional colorist views this statement as a surgeon would the assertion that anesthesia is still on trial.

Sufficient case histories, and surveys by government and by private associations of manufacturers now exist to prove not only that properly engineered functional color does accomplish desirable results, but also that it is an essential element not to be disregarded in the planning of any building where tasks of concentrated seeing are required. Functional color has had, and has before it, a hard fight to win due recognition in the architect's mind, but it will ultimately prevail as did the practice of acoustic correction. One remembers the day when architects thought they could take acoustics or let them alone, but today acoustic materials are specified with-

out quibble wherever they are needed or desirable.

Yet eyesight is obviously more necessary than hearing to human well-being. Eyes are responsible for from 75 to 90 per cent of the usefulness of human actions, and 87 per cent of all sense impressions are received through them. Conditions that help eyesight help people. Conditions that hinder good sight may affect the whole human organism by causing headaches, dizziness, nausea and indigestion. Even the heart-rate remains more normal under good conditions of seeing. In the writer's experience, a factory reported that girls engaged in sorting and inspecting small, glistening metal parts upon a moving belt were frequently nauseated and obliged to take time out to rest. Polaroid glasses to cancel specular reflections, and stopping the belt at intervals of time, furnished the cure and increased production. Since this seeing problem was due more to the effects of light than of color, the point may be made here that light and color are Siamese twins. Neither can exist without the other. Good seeing requires that



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INDUSTRIAL BUILDINGS

By Julian Ellsworth Garnsey,

Colorist

both be skillfully designed. In this paper it will be assumed that lighting problems, too complicated to be treated here, have been correctly solved.

What procedure, then, shall an architect follow in his endeavor to specify color which promotes good seeing? To begin with, he should take note of some peculiarities of vision which are fundamental to the solving of his problems. These are inherent in the construction of the human eye and in its system of transmitting visual impressions to the brain. In spite of its marvelous accuracy and adaptability as an instrument of seeing, the eye enjoys tolerances in its operations which would never be allowed in a man-made tool of precision. Principal among these which should be taken into account by the architect are:

1. Simultaneous Contrast

The eye sees no color within its field of vision as a fixed quantity, but only as modified by the simultaneous perception of adjacent colors. The color seen is modified

as to hue, value and intensity. As to hue: each color seen will tend to cast a tinge of its *complementary* color upon the adjacent colors. As to value: dark colors will make adjacent colors appear lighter and vice versa. As to intensity: strong colors will weaken adjacent colors.

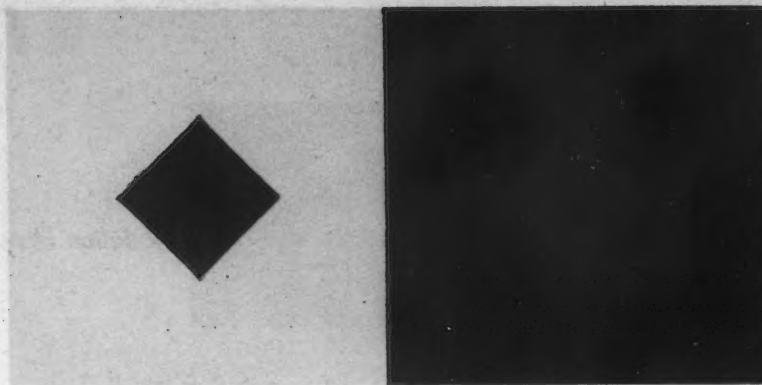
This phenomenon of vision is perhaps the one most frequently overlooked in architectural practice. Materials which are to be placed contiguously in a building are often chosen separately without regard to their mutual interaction, sometimes with surprising final results. In industrial plants the phenomenon may be advantageously used to emphasize work in hand, to separate machines from their background and to enliven a general color scheme for psychological effect upon the workers. For instance, a tan background of low reflectance will strengthen the general bluish hue of steel castings and accentuate their forms for quicker handling while copper or brass objects, generally toward orange in hue, will be easiest seen against gray blue-green. Rows of medium green machines will reveal their contours, if that be desired, against light pinkish gray. On the walls, pale gray tints may be "forced" into apparent color, without losing their necessary high reflectance, by colored painted bands, columns or whatever, in slightly richer complementary hues.

2. After-Image

The eye tires quickly of any color upon which it is focussed and tends to record, immediately afterward, the complement of that color. If one gazes intently at an orange spot and then looks quickly at white paper, an after-image of pale blue will appear. One of three effects will result from this phenomenon of vision: the second color viewed may be enhanced by the after-image remaining from the first color (as red seen after green), it may be weakened (as pink seen after red) or

Simultaneous Contrast of Value

All four circles are the same value of gray. The effect of contrasts, seen so vividly in black and white, is also a phenomenon of colors. Dark colors similarly will make adjacent colors appear lighter



it may be influenced toward a different but not necessarily unpleasant color (as yellow which is seen after orange).

The effect first mentioned was used at the New York World's Fair where a "Golden Circle" was the first group of buildings seen by the visitor who, arriving by the Long Island Railroad, traversed a long vaulted station en route from train to the Fair turnstiles. To prepare the visitor's eyes to see gold, and yet more gold, the strip windows of the station were washed over with a blue-violet translucent glaze. By the time he had walked through the station the visitor was visually weary of violet and ready to see yellow on any surface which next met his eye.

The second effect mentioned above, the weakening of the second color, is one to be avoided in planning color, and the third, the changing, must be estimated for its probable good or bad result.

Application to industrial work will depend upon the answer to the question; What effect will after-image produce upon the particular problem under discussion? Will a warm or cool after-image be desirable or not? For instance, if a large interior should look cool and spacious, a strong orange in the vestibule to that space will help accomplish the effect. On one occasion a surgeon asked the writer to provide a wainscot in his operating room with a color which should complement the color of fully coagulated blood in order that the surgeon's vision might be relieved and refreshed as he looked up from his work. The blood color turned out to be, not the rich warm red of fresh blood, but a dark purplish red, to which the complement is warm gray green, and the incident underscored the point that, in color, nothing can be taken for granted but must be exactly defined.

At times, no hue at all will be the right solution. For example, workers upon multi-colored artificial flowers should be able to rest their eyes upon a darkish

neutral gray, having no hue stimulation, and should find somewhere in the distance a soft blue field which relaxes the close accommodation required for their work.

3. Warm and Cool Colors

Everyone has noticed that colors containing a predominance of red feel warm, that those containing much blue feel cool, and that the former seem nearer, the latter farther away than their true distance from the eye. Red-orange in strong intensity advances most, and blue in light value and weak intensity recedes farthest. Perhaps few people have also observed that only yellow and purple appear to hold their actual position in space. This phenomenon holds true, not only for pure hues but also for delicate relationships in tints, shades and tones. For example, a long narrow room may be visually shortened so that the distance from work-bench to locker-room seems less than it really is by painting the end walls in a dark value of an advancing color like burnt orange or maroon. Conversely, small rooms may be given greater apparent dimensions, so that personnel will not feel crowded, by the use of a light tint of a cool color — pale turquoise, aquamarine, leaf green — for walls and perhaps the ceiling.

Moreover, illusions of a higher and lower temperature may be created by the same means. Recently the writer was asked to correct, so far as color can, the oppressive effects of New York summer heat in a banking room where air conditioning, because of structural limitations, could not be installed. The simple solution of changing the existing tan color-scheme to pale gray-green walls, white ceiling and enameled white columns was voted a success by the bank's personnel. As a by-product, the many young ladies employed there looked prettier against the new background and the colorist took credit for this happy, unplanned result.

Simultaneous Contrast of Hues

The green diamonds are printed in the same color. Each background casts a tinge of its complement upon the diamond within it. Yellow induces its complement, violet, which neutralizes and darkens the green. Blue induces orange, which lightens and yellows the green.

PSYCHOLOGICAL ASSOCIATIONS

In addition to the visual phenomena noted above, the architect will want to give attention to certain psychological associations of colors which are not visual but mental. In hospitals, therapeutic color is now standard practice, and the same principles which help to cure sick persons may be used to influence healthy workers. Moving around the spectrum we note that yellow, the color of sunlight, brings good cheer; green has little effect upon human emotions; blue is definitely calming; purple is depressing; red excites to courageous endeavor; and orange is the most powerful stimulant of all. Hues occurring between the six hues named, and variations in values and intensities, furnish material for inducing any psychological reaction desired.

It might be well, in this connection, to clear up the question frequently asked as to how many colors are available in this world. The fact is that colors are far from infinite in number. Theoretically, some 150 hues are discernible by the eye in the spectrum of sunlight.

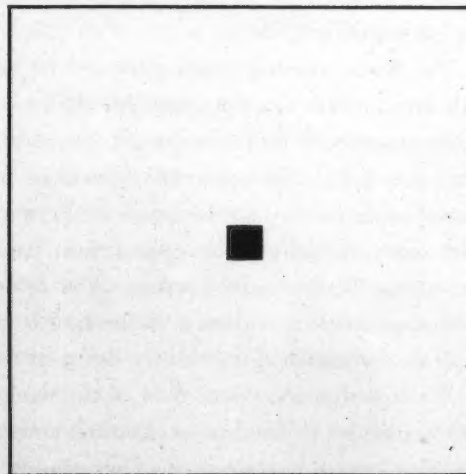
Multiplied by 10 for variations of value in each hue and again by 10 for variations in intensity at each value level, the figure of 15,000 possible colors is reached. However, in practice, a total of 1000 colors is probably the maximum required by any architect. Prepared systems of color chips range from 400 in number, too few to afford adequate choice, to about 1000, which are sufficient for any architect. One of the excellent color systems now available should be part of the equipment in every office. In addition, a dozen or more standardized systems for industrial painting are available from large manufacturers of paint. These have been skillfully designed to strike a general compromise between the solutions of all the problems found in industry, and are a great advance over the dull color schemes to be found in many plants operating today. Unfortunately, since they strive for a compromise, each differs from the others in hues selected and in number of colors. The timid architect will not go far wrong in using one of the systems, though he may miss complete solutions of all his problems.

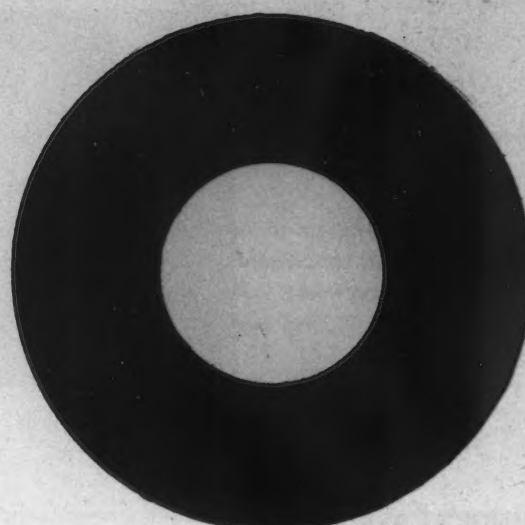
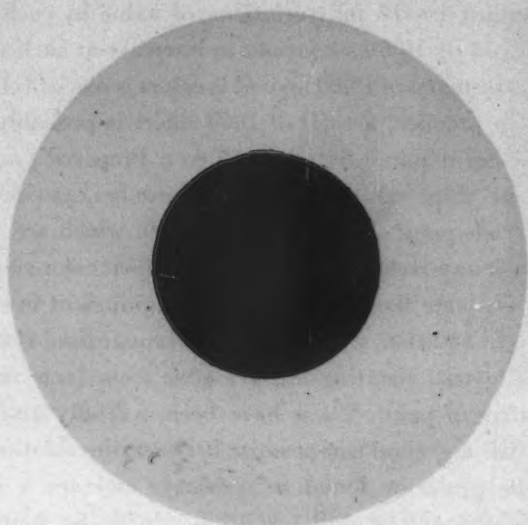
Returning to the industrial plant, we pick up the matter of choosing colors for their psychological effect. The architect is most interested in the colors which he shall specify for ceilings, walls and floors. Again a bit of theory is necessary before we proceed to the specifications, and again reference must be made to the mechanics of seeing, for the architect's thinking upon which his decisions will be based must work outward from the man at the machine, through the man's immediate surroundings, to the surfaces farthest away.

The first consideration is eye-comfort at the machine. The guiding principles here are: (1) brightness contrasts shall be greatest within the confines of the work in

After-image

Look intently at the red square below for ten or fifteen seconds. Then shift the gaze quickly to the black dot at the right. The resultant light blue-green square is the visual complement of the red square, induced by after-image.





Advancing and Retreating Colors

On each disk the yellow appears farther forward than the blue

hand; (2) brightness contrast shall then be less between work in hand and its background; (3) that no contrasts farther away shall be permitted to interfere with the first two relationships. In other terms, brilliant illumination upon the object in work is required, slightly less upon the background against which the object is seen, and successive small contrasts against the floor, walls or other surfaces within view. Since light and color go hand in hand, color contributes to the overall effect of brightness contrast, though illumination is the dominant factor. It is the lightness or darkness of color — that is, its value — which assists or prevents the establishment of correct contrasts in brightness. For prolonged concentration in seeing, brightness ratios between task and surroundings should be smaller than 5 to 1, ratios greater than 10 to 1 should be prevented if possible, and ratios in the region of 100 to 1 should not be contemplated.

The floor, which is often glimpsed beyond the working area of the machine, should obviously be light in value in order to minimize brightness contrast. The fact that less light falls upon the floor than upon the machine permits the specification of lighter colors than ordinarily thought to be appropriate, and such colors encourage better house-keeping. The color of the floor will approach neutral as a concession to maintenance, and as a common denominator between other colors.

Walls within the visual field of the worker will follow the principles of brightness contrast mentioned above, so far as value is concerned. They should be of such a

value, taking into account their distance, height, orientation and illumination, that slight brightness contrast between them and the machines is maintained. Yet a conflict arises from the fact that as much reflectance of light as possible from the upper part of walls is desirable, within the limit of glare. In some cases of lofty interiors, upper parts of walls may well be white and lower parts in color, but no general rule can be stated. Hue will be determined by the psychological effects desired.

Dados are of great value for industrial plants, though they may be thought outmoded elsewhere. Many a problem of good seeing for the worker can be solved by appropriate dado color as background and as rest area for the eye. And speaking of rest areas, one should make the point that no hue in itself is "easiest on the eyes." Visual comfort comes from properly balanced brightness contrasts, not from any particular hue. Relative values and intensities are the governing factors.

Ceilings, because they are usually situated above the horizontal field of vision and because they usually should reflect all possible light from the sky or interior sources, should be handled differently from any other surface. In most cases they should be white, and should be kept white by repainting at reasonable intervals. However, care should be taken that a bright ceiling does not become a source of glare. If the visual field of the worker be considered to extend vertically about 120° — 60° above and below eye-level — the possibility of encountering glare may be easily calculated.

ESTHETIC CONSIDERATIONS

While the foregoing discussion has considered only the functional aspects of color, esthetic considerations are not to be dismissed. No law of nature or man requires that human activities should be conducted in an atmosphere of depressing color. On the contrary, it has been proven that bright, cheerful, attractive color pays dividends in better tempers throughout an organization. If the average home were to present the dull, forlorn color scheme of many a work-place, a further rise in the rate of American divorces would be confidently expected. This is not to imply that bizarre color-schemes, tossed about at random are to be encouraged. Workers would be the first to apply pungent epithets to them. But simple, appropriate, dignified schemes, as colorful as may be permitted by requirements of good seeing conditions, influence workers whether they are entirely aware of their environment or not. For example, a newspaper press-room in previous days was a horrible example of dingy, unclean, ill-lighted working conditions. The boldest departure from that precedent has recently been accomplished for a great newspaper in the Pacific Northwest, where light beige walls, pale lemon-white ceiling and vermilion columns enclose that magnificent piece of machinery, a 16-unit press, enameled in deep ultramarine blue. An enlightened architect and a generous client gave encouragement to the colorist in planning a scheme which is guaranteed to lift the spirits of men whose job is, at best, noisy and wearisome. Not many industrial interiors would support such a brilliant color-scheme, but mention of it may reassure the faint-hearted.

In any case, rest and locker rooms, cafeterias, lobbies, offices and clerical spaces will permit more interesting, exciting schemes than are now customary. Women's restrooms call for soft peach, rose, soft yellow or pale salmon on walls and ceiling, warm beige carpet and soft lighting. News of such accommodations for personnel gets around among the working population in the vicinity and has been known to attract workers from other plants. The cafeteria may be either warm or cool in hue, depending upon its orientation, and may have peach, rose, yellow or light soft green on its walls, white tinted with the wall color on its ceiling, and a deep value of the same in the floor covering, but no pale blue, violet mauve, nor even white, if management desires personnel to eat heartily.

Private offices of executives present the frequently observed problem of man-attached-to-desk. Moving from the old plant to the new, the majority of executives insist on bringing along the familiar mahogany or dark walnut desk, the matching set of chairs and often

the ancient rug. To the design of decent seeing conditions these well-beloved but visually unfortunate objects are serious handicaps. They violate exactly the principles which govern good seeing for the machine operator out in the shop. Many a company officer who attributes his headaches and bad temper to acid indigestion is the victim of brightness contrasts between white paper and dark desk or carpet. If he can be persuaded to buy a new desk or to have the old one refinished to a reflectance of perhaps 25 per cent, something can be done with the rest of the room. A white ceiling, walls of not lower than 50 per cent reflectance and a correct positioning of architectural light sources (above and to the left of his left shoulder, not on the front edge of the desk) may result in his acquiring a sunny disposition and radiating good cheer.

The main entrance lobby to which the public is admitted should obviously exemplify in color, as in displays, the quality and character of the firm it represents. Yet one sees frivolous color standing for integrity and, more often, dull stupid color standing for a bright, lively, up-to-date organization. To strike exactly the right note is none too easy but is worth attempting. Fortunately, the necessity of observing rules for good seeing is not present, since people spend only a few moments there. Drama, free expression, imagination and fancy can be given rein. One can imagine the lobby to a factory making brake-shoes treated in stainless steel and deep blue under the cold illumination of day-light fluorescents, the displays of objects manufactured lit by pale yellow light from filtered sources. Or one can fancy the lobby to a plant where lighting fixtures are made as a pure white dome upon which the colored decoration would come from the intermingling of colored lights cast upward through the apertures of the lighting fixtures on display, arranged for pattern. In a word, the visitor's first impression is important, whether he is conscious of its impact or not, and the lobby should be designed to influence him favorably toward the firm upon whom he calls as buyer or as seller. Color will be an integral part of the attack upon his emotions.

As the visitor progresses from entrance lobby through executive offices to the last machine in the production line, he should encounter a coordinated series of color impressions, each of which is calculated to perform an appropriate function for easy, comfortable seeing, for good cheer and even for esthetic pleasure. Toward the accomplishment of these optimum conditions the wise architect will bring his influence to bear upon the client.

Happily, both will share in the benefits which result therefrom.

NEW PLANT TO RELIEVE A NATION'S HEADACHES

Factory for the Bayer Company Division, Sterling Drugs, Inc., Trenton, N. J.

The Austin Company, Engineers and Builders

Giant slugs of aspirin cross a 40-ft. overhead from new plant to an older building on belt conveyor enclosed in stainless steel; the older building has been modernized for the tableting and packaging operations.



WITH THE ADDITION of this new plant, costing \$2,500,000 to build and equip, the Bayer factory has a production capacity equivalent to 60 per cent of current United States consumption of packaged aspirin tablets.

The steel frame structure, faced on the exterior with buff face brick and continuous bands of sash and glass block, has an overall length of 340 ft., and ranges in depth from 170 to more than 200 ft. Receiving and shipping departments and a 280-ft. warehouse extend along the full length of a 300-ft. loading deck.

Manufacture of aspirin powder is carried on in two identical buildings, each of them being arch-type structures 120 ft. long and served by its own air conditioning system. Boiling kettles, filters, slurry kettles and evaporators, in which chemicals are converted into

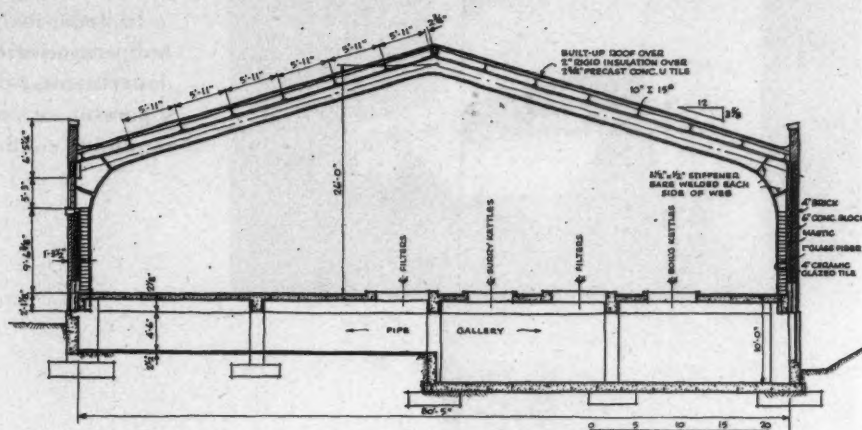


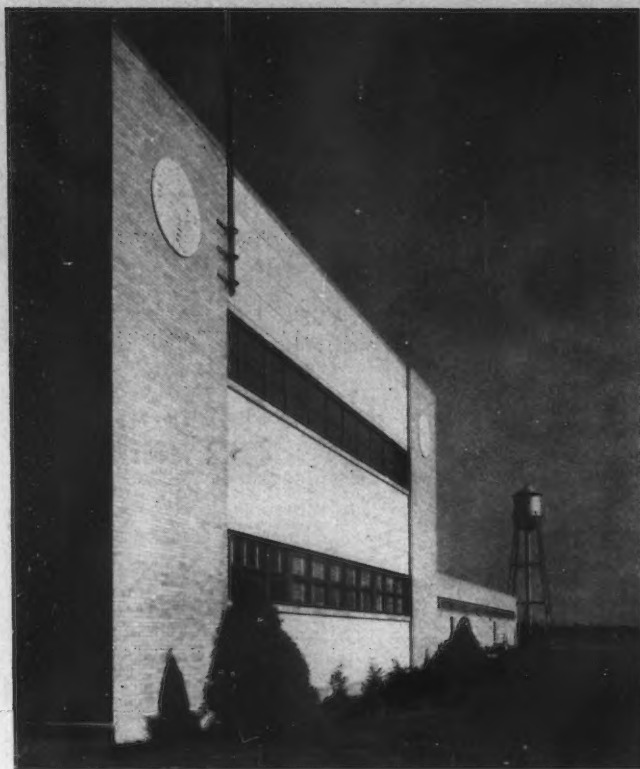
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Photos by The Austin Company

There are two identical areas like this, each with four complete aspirin powder manufacturing lines. Welded rigid frame spans 70 ft.; roof is of precast concrete tile, sidewalls are glazed ceramic tile, acid-resistant tile on floor. Room is air-conditioned, and all wiring is explosion-proof





Photos by The Austin Company

aspirin powder, extend through the concrete floor to pipe galleries below, which connect each process unit to the next one in the manufacturing sequence.

A two-story wing, 60 by 203 ft., in the angle formed by the canopied carloading deck and one of the powder manufacturing buildings, serves as headquarters for the chief chemist. Mixing and granulating departments occupy one-half of the building nearest to the powder manufacturing structures, and are served by conveyors which extend across a 65-ft. connecting bridge to the tablet forming and packaging departments.

In order to maintain extremely accurate control of temperature and humidity in the various manufacturing departments, the plant has been equipped with seven separate air-conditioning systems. To maintain the required conditions for the powder manufacturing

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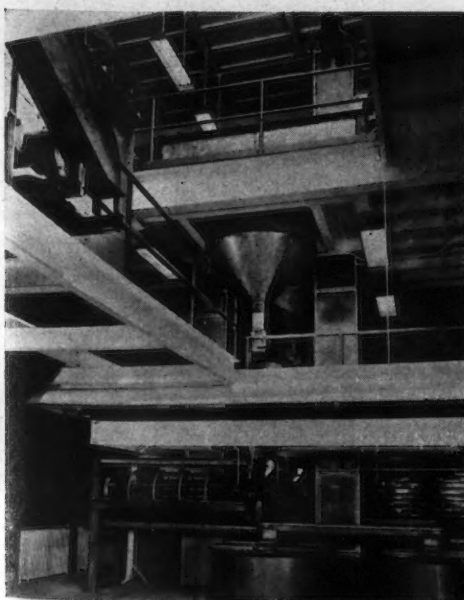
rooms, for instance, the humidity is automatically controlled. The air in these areas is changed completely every $3\frac{1}{2}$ minutes.

The air blanket carries with it the vapors and fumes which are released by the manufacturing process. Sampling detectors are installed at the inlets of the exhaust fans continuously to record the condition of the air leaving the areas.

Vapor-proof fluorescent lighting fixtures have been installed in the powder manufacturing buildings to provide at least 20 foot-candles of intensity at the working level, and an intensity of 40 foot-candles is maintained in the control laboratory. Dust-tight fluorescent units were used in the mixing and granulating departments, and explosion-proof fixtures in the acid recovery building.



Top right: cleanliness seems to be the criterion in this employees' cafeteria, with ceramic tile walls and asphalt tile flooring. Right: fans like this deliver 59,000 cfm. of fresh air through seven separate air conditioning systems. Below left: an intricate pattern of steel work provides four levels for the mixing machines. Below right: a view in the older building as modernized with glass block, fluorescent lighting, air conditioning





NEW PROCESS REQUIRES NEW PLANT

Factory for Chas. H. Phillips Co., Division of Sterling Drug, Inc., Gulfport, Miss.

W. Stuart Thompson and Phelps Barnum, Architects; Guy B. Panero, Engineer

OF BUFF BRICK, steel-frame construction, the building is in general a one-story structure, except for a small two-story portion that contains about two-fifths of the total floor area. In this two-story portion are housed part of the manufacturing equipment, the administrative office, finishing office, receiving office and machine shop.

Primarily the plant was laid out to accommodate a simplified process and equipment which it required. However, it was also necessary to provide space for the specialized bottling and packaging operations. In addition, the building was planned to allow a 35 per cent increase in filter press capacity and also to make room for the future manufacture of toothpaste.

Plant operations are directed from modern second

floor offices, which are equipped with acoustical ceilings, asphalt tile floors, recessed fluorescent lighting, and are fully air conditioned.

With the exception of storage rooms and a room housing filter presses, the entire plant is air conditioned. The tableting room and the bottling and packaging room have constant humidity as well as air conditioning to keep air clean and to maintain uniform working conditions.

As further insurance against Mississippi's warm weather, employees are provided with air conditioned rest and locker rooms and a combination lunch and recreation room. Daylight is admitted to the main floor, where most of the employees work, through a 120-ft. continuous glass block window panel in the west wall.

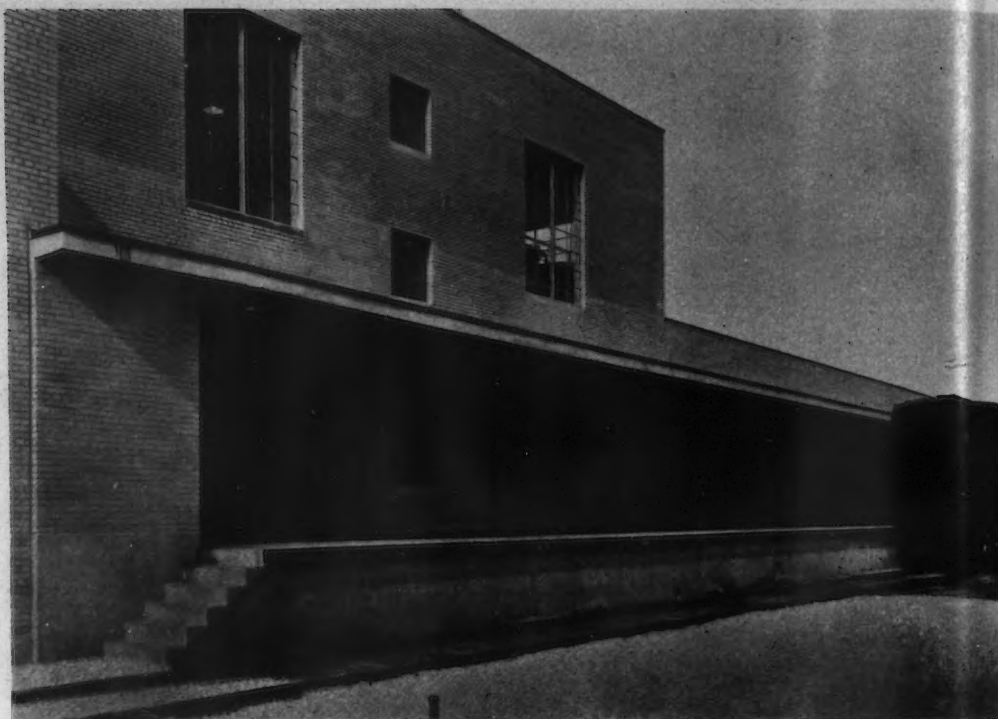


Drix Duryea Photos

A new process for the manufacture of milk of magnesia, the raison d'être for this new plant, comes to fruition in the capping and packing room, which like the rest of the factory, has complete air conditioning for temperature and humidity control, also to keep the plant free of dust and impurities



This loading platform, one of two identical receiving platforms, is 165 ft. long. The plant is within three miles of the Gulf harbor, from which much of the product is shipped to South American markets



Doors leading from the packaging room to storage are opened and closed by a photo electric cell so as to permit free movement of electrically operated double fork pallet trucks which carry and stack the product. The high-ceilinged storage and shipping room for finished products contains 21,300 sq. ft. and is adjacent

to a 165-ft. long covered rail loading platform that will accommodate four freight cars. A 12,000 sq. ft. yard stock room is located adjacent to finished products storage with access to a receiving platform identical with the loading platform. Two other shipping and receiving platforms facilitate shipment by trucks.



Above:
lb. per s
construct



Drix Duryea Photos

Above: control panel, piping and boilers which provide heating and process steam. Each boiler is rated at 265 hp. at 100 lb. per sq. in. Below left: a row of tablet making machines for the final step in laboratory cleanliness. Below right: "clean" construction is necessary to afford maximum headroom for a fork-truck type of stacking which saves heavily on floor space



FACTORY WITH A SLOPING FLOOR

New Plant for Square D Company, Los Angeles, Cal.

The Austin Company, Industrial Engineers and Builders



DESIGNED and built to help serve the greatly expanded postwar electrical control-equipment requirements of western industry, the Square D Company's new plant is typical of many completed last year in the West.

The building comprises two sections — a production area of 106,708 sq. ft., and a unit of 12,500 sq. ft. for administrative offices.

The engineers were confronted with an unusual site, a long narrow plot running north and south, with the rear somewhat wider and of considerably greater elevation than the front. The east wall of the plant is on the property line, while the west wall faces on a 60 ft. street,

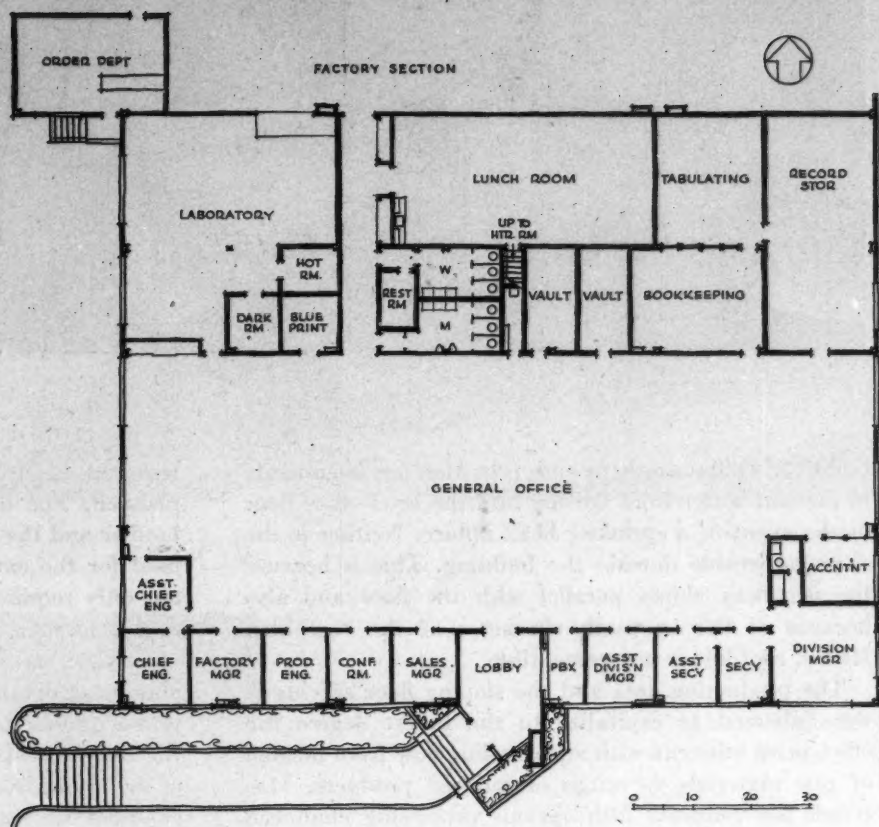
half of which belongs to Square D and the other 30 ft. to a neighboring manufacturing concern. Each firm granted an easement to the other, so that a 60 ft. street will always remain to serve both organizations.

To prevent excessive cut and fill, the floor level at the rear of the building on the north stands higher than the southern end of the factory area; the floor is carried at a uniform slope in the plant proper from north to south. With truck-delivered raw materials arriving at the rear of the building, the handling operations and production sequence thus run with the floor slope. The floor slopes at 1.11 per cent up, which is not perceptible inside the

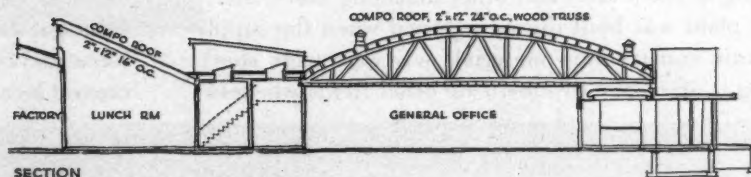


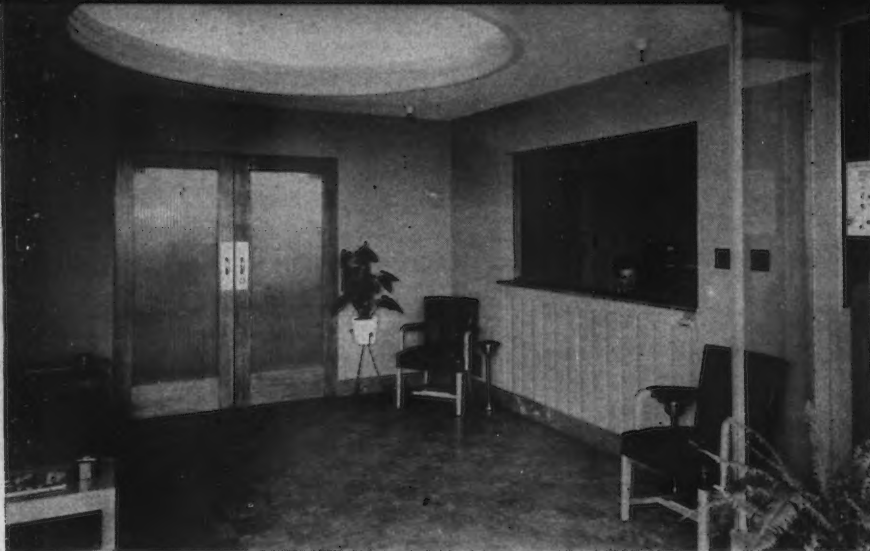
Since the approach is from the side, the front entrance takes a 45-degree angle. The canopy extends around south and west sides of the office portion; shade louvers are metal

ARCHITECTURAL RECORD



Central office section, with windows only at the ends, is air conditioned, acoustic treated, fluorescent lighted. Various vaults, storerooms, rest room and laboratory separate offices from the factory section





building. At the southern end, provision has been made to prevent water from flowing into the level office floor in the event of a sprinkler head failure. Neither is the slope noticeable outside the building. This is because the driveway slopes parallel with the floor and also because of the sawtooth character of the roof line. Hence, roof line is not perceptible.

The production area and the sloping floor serving it were planned to capitalize to the fullest degree the efficiencies inherent with straight-line flow from income of raw materials to outgo of finished products. Materials are funneled into various processing channels, therefore, in accordance with the sloping floor level. A crane of five-ton capacity in the receiving bay at the rear of the building, where stock departments are located, facilitates rapid unloading and economical handling of sheet steel and other incoming materials.

The plant was built during a period when the supply of certain construction materials was extremely short; making it necessary to substitute other items whenever

required in order to carry through construction as planned. For instance, due to the shortage of form lumber and the few carpenters available, Shotcrete was used for the exterior plant walls. Use of this material not only required, but also made possible, many more re-uses of plywood and other form lumber.

Vertical sawtooth sash in the roof is fixed and has aluminum dividing bars of the puttyless-type. Ventilation is provided by sheet metal ventilators at the ridges. Considerable ventilation is obtained due to the exhaust of the drying ovens. The factory area is heated by direct gas-fired suspension-type unit heaters, which are so arranged that all or any portion of the air can be recirculated. During the summer months these heaters are used for ventilation.

Metal partitions are used for many of the interior office partitions. The office is heated by forced warm air from gas furnaces. Fans and furnaces are located in a room above the two vaults with fireproof walls. This central location is best for efficient operation.





To eliminate much grading, the factory floor was given a mild slope—1.11 per cent—which is really imperceptible. The material flow, however, is arranged so that trucking operations take advantage of the grade





FLEXIBLE FACTORY FOR PAPER BOXES

Plant for The Mengel Company, Fulton, N. Y.

The H. K. Ferguson Company, Industrial Engineers and Builders



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Two-story section of factory (right) contains testing laboratory and employees' recreation room; door shown is employees'



IN ORDER that improved machinery may be installed without interfering with present production, it was necessary to design this plant for possible relocating of equipment and rearrangement of operations. This factor stressed the necessity for flexibility in the overall design, with wide spacing of columns and constant clearance to roof beams. A temporary (south) wall was built of brick spandrels with high continuous sash and Cemesto board above the sash. Thus an economical wall was provided with no sacrifice in appearance.

The 60,000 sq. ft. of storage and manufacturing area is a well lighted, heated and ventilated building with 17 ft. 8 in. clearance to the roof framing, and a hard concrete floor that can stand maximum abuse from the large lift trucks handling the paper rolls and pallets of finished boxes.

Natural as well as artificial lighting was considered

desirable and two monitors were provided to run the length of the building with four lines of continuous sash 6 ft. 9 in. high. The artificial lighting medium is fluorescent fixtures giving an intensity of 25 foot-candles at working level.

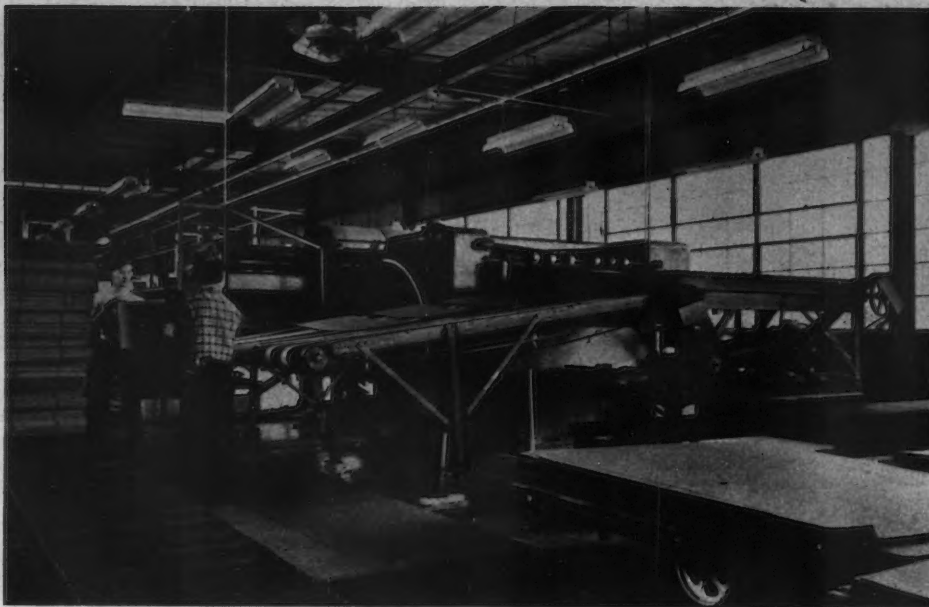
The factory area is heated with steam heated unit heaters with Anemostat diffusers. The flat roof is provided with 1 in. insulated board over precast concrete channels.

Because of the moist condition over the corrugating machine, considerable thought was given to the construction of the roof deck. From a standpoint of economy and serviceability a comparison was made between precast concrete, gypsum, steel plank, steel deck and wood plank. It was decided that the use of a dense precast concrete would result in a saving in maintenance cost and give long-life service without any appreciable

Across page: biggest item to be housed was the corrugating machine; paper from three rolls feeds in, comes out as flat corrugated sheets. Special building problem was hard floors for heavy trucks.



Another problem in the corrugating room was moisture from gluing operations, requiring extensive ventilation. Fluorescent lighting supplements and balances daylight



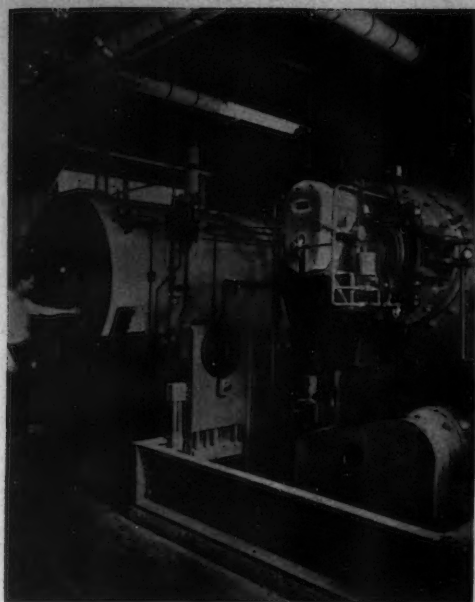
Steel framing is kept "clean" by a special method of using the monitor space for diagonal tension bracing. Thus spans can go up to 60 ft. without the usual deep truss construction

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Boiler room has two 300 hp. oil-burning boilers for heating. Nearly a third of the building's 60,000 sq. ft. is taken up for storage of huge rolls of paper

Gottsch-Schleisner Photos

added installation cost. The addition of a 1 in. thick insulation board under the composition roofing contributed to a sizeable reduction in the heating requirements and insured a more comfortable building in both winter and summer.

A very important part of this type of plant design is the floor construction, because of the severe wear from the heavy lift trucks. The earth fill under the floor slab was carefully selected and firmly compacted to give uniform support to the heavy loads. The slab was reinforced with extra heavy wire mesh and given a separate 1 in. finish of special mix and surface hardening to withstand the heavy loads and constant traffic.

An unusual feature of the building is a new type of

roof framing that was developed especially to meet all the requirements of this plant, but which should have wide application in industry. The 60 ft. and 45 ft. roof beams were given intermediate support at their parts by diagonal steel members placed up in the monitors. This made it possible to use much longer roof spans than would ordinarily have been practical without using trusses. Thus were combined the advantages of economy, clean interior appearance, easy maintenance of steel, simple fabrication and erection, wide column spacing, and a minimum height of building. A considerable saving in steel tonnage was realized by taking full advantage of the effect of these diagonal hangers on the beams and column.

Printing is another operation to be accommodated in a paper box factory. Flat sheets comes to the press on long conveyor lines, are printed, and conveyed again, still flat, to box machines





PLANNED FOR PRECISE CLIMATE CONTROL

New plant for Sapphire Hosiery Corporation, Telford, Pa.

Lockwood Greene Engineers, Inc., Designers; A. Carl Stelling, Landscape Architect

THE STORY of this plant starts with a search for the best site by the designing engineers. They checked especially these factors: (1) availability of skilled labor, (2) flat terrain with economical sub-surface strata, (3) water available for fire protection, (4) suitable drainage disposal, (5) favorable attitude by the community, (6) sufficient space for expansion.

In the design of the building a major factor was the difficulty of obtaining the full fashioned knitting machines; the plant was planned for 16 machines, to be increased to perhaps three times as many, with some other facilities to be added later. As the operation indicated a one-story plant, more expensive than, say, one of two stories, extra space was kept to a minimum in the origi-

nal design, and a temporary end wall built to permit easy expansion. Spans are long, both to accommodate the knitting machines and to maintain flexibility for future changes.

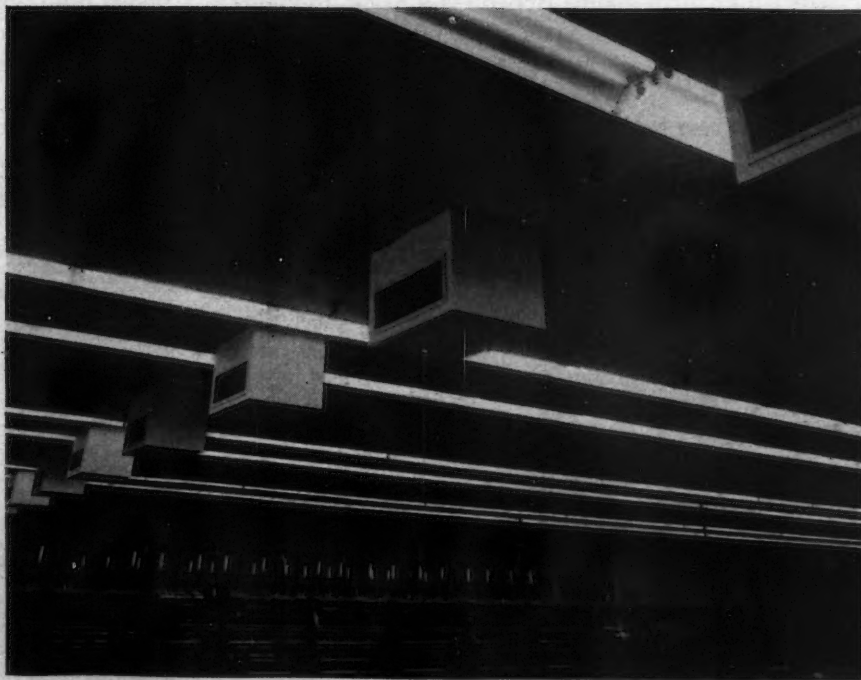
The building was designed to be completely sealed, with walls and roof insulated. The new knitting machines are very sensitive to changes in temperatures, and the current types of yarn require careful control of humidity. Also the machines generate considerable heat, which during most of the year must be removed. Thus production results demanded full air conditioning the year 'round.

Structural frame is steel, with trusses spanning 60 ft. over the knitting area. Exterior walls have 4 in. of face



William M. Rittase Photos

As the new knitting machines are very sensitive to temperature changes, the air conditioning system is designed to maintain exactly 80° and 50 per cent humidity





Window openings are sealed with glass block; there are no operating windows. Even with the most precise air conditioning control, looping and seaming operations are carried out under closed covers

William M. Rittase Photos

brick, light buff in color, backed up with 4 in. of cinder block over which was applied 2 in. of glass insulation. In production areas the cinder block remains unfinished; it is plastered in offices, rest room areas, and so on.

There are no operating windows; all openings are glazed with 8 by 8 double ribbed glass block, to eliminate the necessity for curtains as a protection against sun and glare. Exterior and interior sills are of precast concrete.

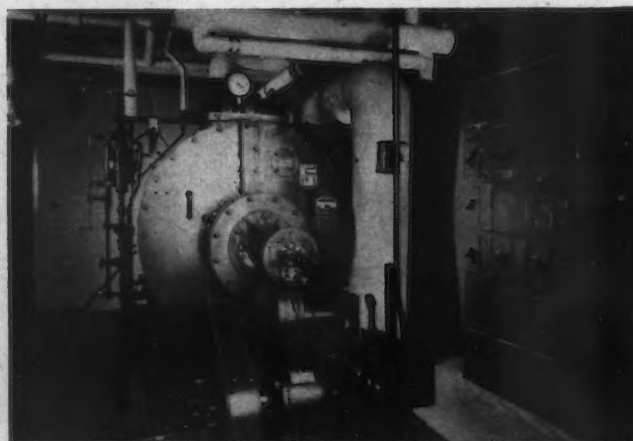
Most ceilings were suspended, with an acoustical ceiling composed of 4 ft. by 8 ft. by $\frac{1}{8}$ in. perforated asbestos board over which is laid 2 in. of glass wool muslin covered batts. Troffer lights were set flush with the finished ceilings. Air supply outlets project below ceiling.

The lighting and power system makes use of the best developments in electric light and power equipment that are available at the present time. All lighting and power panels are circuit breaker type. The air conditioning system is controlled by a central control panel which incorporates combination starters and circuit breaker equipment. All motors have individual sources of supply from the various power panels. Fluorescent lighting is employed throughout, with the exception of utility areas. In the manufacturing areas the lights are of continuous recessed troffer type — twin tube fluorescent. These recessed fixtures were designed to give a lighting intensity of 50 foot-candles at the working

plane of the knitting machines. Other areas have between 25 and 35 foot-candles depending upon the use of these areas. The total power load is 330 KVA. The total lighting load is 40 KW.

The project represents an ultra-modern air conditioned full-fashioned hosiery mill, providing 80° F. and 50 per cent relative humidity. All duct work is concealed in the suspended acoustical ceiling. The equipment has been installed in a very small space by installing a mezzanine over the boiler room, thus leaving floor area for manufacturing purposes.

Boiler is oil-fired, automatically controlled



ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

INDOOR-OUTDOOR PLANTING BEDS Part 2

By Henry B. Aul, Landscape Architect

(For a selection of best indoor plants, see
TIME-SAVER STANDARDS, page 155)

THE MOST successful indoor window gardens present a reasonably attractive appearance not only during the months when the outdoor garden is dormant, but throughout the year. A glance up and down the column of the accompanying plant chart (pages 155 and 157) will show that foliage plants must be depended upon to form the foundation for this permanent planting. While this chart has room for only a fraction of the large number of plants available to the indoor gardener, it does include those that he is likely to grow with greatest success.

It will be noted that there are a limited number of plants attractive in both foliage and flower, and these should be given first consideration for the planting. There are also a few flowering plants that have a long season of bloom and should be teamed with the more permanent foliage plants. Seasonal flowering material including bulbs, azaleas and other plants received as gifts throughout the year can be depended upon to give the planting a colorful lift now and then.

Besides the evergreen foliage plants that have an upright, a spreading or round-shaped habit of growth and are suitable for a large part of the planting, there are excellent vines and trailers. Among these are the ivies, philodendrons, cissus and others that can be trained up the sides of the window or used to cover other supports connected with the planting bed. They are also used to face down the taller plants and to trail over curbs and the front edge of bench-high plant counters. In some arrangements they are displayed alone or in combination with foliage and flowering plants from hanging baskets.

Many of the foliage plants have unusually interesting and beautiful mottlings, stripes and other variegations in many different greens and other colors. The coleus, caladiums, bromeliads and begonias introduce reds, yellows, oranges, purples and other brilliant colors and color combinations to the foliage plant group.

Flowering maple, begonias in variety, bromeliads, the cacti and succulents,

impatiens, geraniums and African violets furnish a basis for flowers throughout the year. During the fall and winter they are reinforced with chrysanthemums, various annuals, lantana, and holiday gift plants. In the late winter and spring hardy bulbs and azaleas forced into bud, freezias, amaryllis and veltheimia in flower make this the brightest of all seasons in the indoor garden.

During the summer months when many of the plants, which have put on a long performance indoors, are resting and recuperating in the garden, the indoor planting is kept attractive with the most rugged of the foliage plants, the African violets, begonias and other standby flowering plants. They are augmented by the tuberous-rooted begonias, fuchsias, gloxinias, achimenes and fancy-leaved caladiums.

Frequently it is possible in connection with modern indoor-outdoor plantings to find a semi-shaded location outside the window where the summering indoor plants can be set in the ground and can continue to be a part of the window planting. Ferns, ivy and philodendron can be used indoors and out, begonias indoors and out, draceua and pandanus indoors and hosta outdoors to strengthen the continuity of the two plantings.

The tuberous-rooted and the fibrous-rooted begonias are excellent plants to create a tie between the indoor and outdoor plantings. Since growing conditions are so dissimilar between the two areas it is seldom desirable to duplicate the plantings on both sides of the window. It is enough that a number of the same



Indoor window garden filled with an assortment of flowering and foliage plants in pots. The planting has its greatest depths and height in the corner near the mirror. Indoor plants are thus effectively displayed, and the entire planting serve to frame the view of the outside garden



Monstera deliciosa, a foliage plant of unusual ornamental appearance; it has the odd common name of Swiss Cheese Plant

plants, or plants of the same type, are used in both gardens. Many of the hardy, broad-leaved evergreen shrubs, such as the rhododendron, laurel, azaleas and andromeda are frequently used as background for the outdoor portion of the planting, while the various philodendrons, monstera, dieffenbachia, aglaonema and others fill the background with quite similar effect indoors.

Plants in the large window garden must be arranged to form a planting pleasing in appearance from inside the room, but at the same time they should frame, not block, the view into the garden. Tall-growers are placed toward the back and sides of the space, with the medium and low-growing specimens in the center and at the front edges. Va-



One of the Bromeliads, attractive in both foliage and inflorescence

riety in foliage and plant forms prevents the transition from low to tall growing plants from becoming so even as to appear monotonous. Any arrangement that begins to resemble a dealer's counter where plants are displayed for sale should be suspect, for too much emphasis is being placed on individual plants. Group them without crowding to gain the true effect of a planting. If the planting can be arranged to form a partial partition between rooms, to fill a tall corner space or in other ways to serve some secondary purpose, it will prove effective. Flowering and colorful foliage plants are given a background of dark green foliage plants.

The first article in this series outlined various types of window plantings and



Hippeastrum or *Amaryllis*, a colorful winter and spring-blooming bulb

placed emphasis on the desirability of the metal or masonry-lined planting bed in which to arrange plants in pots on a two-inch drainage base of pebbles. Water, which is kept in the bottom of the pan and near the top surface of the layer of pebbles, supplies the humid atmosphere that is needed to grow plants successfully in modern heated rooms.

The pebbles present a clean, fresh surface on which to arrange plants in pots and simplify the task of watering. With this arrangement a normal room temperature can be maintained during the day, but it is desirable to have the night temperature drop ten to fifteen degrees.

Individual pot-grown specimens are easily turned for better display or to give them light on all sides. Plants that have passed their prime are removed and



Cissus rhombifolia, ornamental foliage on a plant of trailing habit

replaced without trouble and, for variety, the entire planting may be rearranged at times. Plants suffering from diseases or insect attack can be removed for treatment.

Plants grown in a properly humidified atmosphere not only are less subject to insect attack than those in a hot, dry situation, but they are easier to water. They dry out less rapidly, thereby avoiding a drastic change from too wet to too dry. Nothing more elaborate than a medium-sized watering pot with a long spout is required for watering the average collection of plants grown in pots. Exactly when to water is decided by each gardener as he learns to know his plants. Some gardeners go by appearance, others by weight or by the sound of the pot when rapped. Plants are given a good soaking only when they need it.

Gardens planted around modern windows benefit from the sun visor, roof overhang or other arrangements planned to keep the summer sun away from them. As indicated on the plant chart, plants have their individual preference as to the amount of light they like best, but even the ones that require the sun need some protection when it is the hottest. Slat roller shades, draw curtains and Venetian blinds are as welcome to the plants as to the plantsman, where there is no other provision for shading the window.

So long as gas is eliminated from the atmosphere plants do not require a large volume of fresh air. Window and door openings should be arranged in such a way that no strong drafts reach the window planting. However, when the weather is warm they can be given full exposure to the outdoors.

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CONTROLLING MOISTURE IN BUILDINGS

*Article 1: A study by HHFA indicates that the soil is, surprisingly,
the source of many serious condensation problems**

IN RECENT years, especially in low-cost and temporary housing, there has been a tendency to omit basements, and often in their place "crawl spaces" have been substituted, in many cases with wholly unsatisfactory results. Structural failures, material deterioration and unpleasant living conditions have occurred frequently when crawl spaces have been used.

The troubles have been caused by condensation of moisture in various parts of structures with the soil of the crawl space acting as the moisture source. The prevalence of such trouble can probably be attributed in the past to the lack of information concerning hazards accompanying crawl spaces and precautions necessary. Realizing for some time that crawl spaces are a major source of potential trouble, the HHFA has investigated the problems of proper design and treatment and has issued recommendations for adequate ventilation of crawl spaces, ventilation of attics and loft spaces and treatment of the ground within crawl spaces.

Many advantages have been claimed for houses with living and sleeping areas all on one floor; cost studies, considering initial expenditure, often show that pier and skirting construction is preferable to that providing a basement. Specification items, however, such as construction details, insulation, protection to mechanical lines, and site planning, often fail to deal with certain fundamental differences between basementless houses and those with basements. Often stock architectural plans for low cost dwellings are practically identical for a house either with or without a basement. By not incorporating precautionary measures when using crawl spaces, unnecessary and costly damage has resulted, with repairs costing many more times that of preventive treatment.

BACKGROUND

At first thought, there might be a tendency to attribute condensation problems within dwellings to insulation alone, without regard for other possible causes. It is well known that a comparable increase in trouble from prolonged condensation has been experienced with the increased use of insulation. This in no way means that insulation materials

*For further information see, "Crawl Spaces," Ralph R. Britton, Engineering Adviser Tech. Staff, HHFA Tech. Bulletin, Jan., 1948



Evidence of condensation trouble in apartment due to moisture from inadequately ventilated crawl space. Roof condition is shown after a top-story ceiling was removed; note the excessive corrosion of the steel roof beam, bridging and furring channels

are basically at fault, but they have often been improperly used, with the result that wood has rotted, steel corroded badly, insulation deteriorated and paint failed in outside walls. These very same troubles are encountered when the design of a structure with a crawl space does not take care of controlling the vast amount of moisture that may exist in the soil underneath the structure.

A survey of large housing projects made by the HHFA (NHA) in 1944 to ascertain details of construction and

planning that caused major problems of upkeep, management and cost revealed that the term "crawl space" is immediately associated with terms such as wetness, dampness, rotting of lumber, insulation fallen out of place, rusting of steel, freezing of water and heating return lines, rodents, vermin, musty odors and general unhealthy conditions.

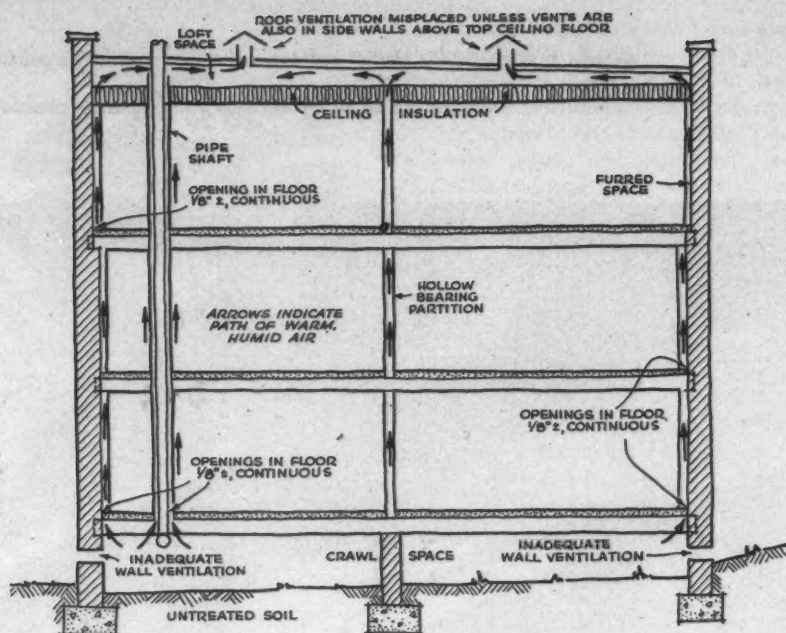
Late in 1945 and early in 1946 a survey of war housing projects, both public and private, was made by the HHFA to obtain experience data on wartime building practices necessitated by re-

First-floor beams in apartment crawl spaces rusted at ends of webs and lower flanges



ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH



Cross section of typical apartment investigated by HHFA illustrates how warm, humid air (path indicated by arrows) reached the loft space and condensed on the cold roof.

Below: crawl space moisture in one war housing project resulted in the delamination and separation from framing members of a plywood soffit of stressed skin construction



Below: high humidity in the crawl space caused the deterioration of blanket insulation



strictions on critical materials. Many condensation problems were discovered and traced directly to the use of crawl spaces. Sponsored by the technical staff of HHFA with other government agencies participating, the survey covered approximately 50 projects in Wisconsin, Illinois, Indiana, Maryland, Virginia and the District of Columbia. Much of the construction was for a five-year life, and certain departures from past practices were justified for this type of construction. Some projects, however, were designed to last at least 40 years. The survey covered construction super-

vised by Housing and other government agencies and some by private interests.

The technical staff of the HHFA was asked early in 1945 to make an analysis and recommendations of a corrective nature on a large housing project where "moisture" trouble in the roof was being experienced. The trouble had been current since construction was completed, but the owners were baffled as to the cause. Many previous attempts to find a solution had failed. Specifically, the trouble was (1) excessive corrosion of steel members in the loft spaces of 3-story steel and masonry flat roof buildings; (2) total collapse of third-story suspended lath and plaster insulated ceilings (in less than two years in some instances); (3) excessive corrosion of mechanical lines and structural steel members below the first floors (in the crawl spaces).

The project was composed of 72 buildings, 40 ft. by 80 ft. in size, three stories in height, of masonry, steel and concrete and considered by the builder and owner to be of excellent construction with a 35-40 year life. Crawl spaces had ventilation in the walls to the extent of only about three per cent of generally recommended good practice, which in the case of these 3000 sq. ft. buildings should have been 20 sq. ft. Loft spaces averaged 14 in. high and were ventilated only by four 8-in. round ventilators extending through the roof near the centers of the buildings. There were no ventilating openings in the walls of the loft spaces as originally built. A cross section of a typical building in this group is shown in the drawing on this page.

The investigation of this project continued over a period of 15 months with a few spot inspections periodically after the major work had been completed. The owner provided a full-time superintendent and special equipment and also furnished labor and material to make alterations to 10 experimental buildings in an effort to correct the difficulties. The value of the work furnished by the owner for research and investigation alone was estimated between \$10,000 and \$15,000, with cost of actual repairs to all buildings more than double this amount.

The findings that follow are from the personal observations of Ralph R. Britton, who acted as project manager on both the war housing survey and the research project, comprising the 72 apartment buildings.

FINDINGS AND DISCUSSION

The ground surface of an enclosed crawl space can be a source of moisture which may, if not properly treated, result in extremely dangerous conditions within the building. The fact should not

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be overlooked that this source of moisture is operating 24 hours per day, as compared to other intermittent moisture-making operations which are of relatively short duration in most dwellings. In the case of the 72-building project, reliable data showed that from 32 to 45 gal. of water were being left in certain structures (3000 sq. ft. area) in 24 hours and that most of this moisture came from the soil serving as the floor of the crawl spaces. Observations in the crawl spaces of this project showed psychometric properties of air as high as the following: temperature, 79° F; relative humidity, 90 per cent; and dew point, 75° F.

The quantity of moisture in the soil of a crawl space may be as high as 23 per cent of the weight of the soil, and with soils having fines ("fines" are soil particles below 1/480 in. in size) in the vicinity of 50-80 per cent, the supply of moisture appears to be constant regardless of the depth of the water table. Separate tests of evaporation of water from soils containing 56 per cent fines with a constant supply of water at a depth of 30 in. below the surface indicated that evaporation from the earth may run as high as 19 gal. of water per 24 hrs. per 1,000 sq. ft., with an average of 12.1 gal. Evaporation from free water under the same conditions will yield 17.4 gal. per 24 hrs. per 1000 sq. ft. It is believed from results of these tests (conducted with smooth tamped soil) that the evaporation from rough soil may well exceed that of free water.

Apartment Project

In the apartment project (see drawing) the warm, humid air was raised by stack action up through the furred spaces of the outside walls, the hollow partitions and the enclosures for vertical piping (shafts), and condensed on the cold concrete and steel surfaces comprising the underside of the roof; the roof was not insulated on top. Although floors were of concrete poured against masonry walls, shrinkage allowed continuous openings about 1/8 in. wide at the junction of walls and floors.

During cold nights, frost and ice accumulated on the underside of the roof deck only to drop off when the sun heated the roof. Puddles of water at least 12 in. in diameter were observed on top of the insulated metal lath and plaster ceiling. Under these conditions efflorescence and flaking appeared on the ceiling, and the metal ties rusted and failed when they could no longer carry the weight.

Although the steel of the 72-building project was copper bearing and had a shop coat of paint, first floor joists were badly pitted, and one of the worst conditions noted was the 15 per cent loss of section in four years. Other steel was badly rusted, both in local areas and at



Paint failure on a temporary war housing project attributed to crawl space moisture

times over the entire floor area. Water was trapped under blisters in paint also.

It was noted that certain buildings in the project had experienced little trouble although they were sometimes within 100 ft. of those where trouble had occurred. Tests revealed that the soil in the unaffected buildings had a high content of coarse materials which apparently greatly reduced the capillarity and resulted in less water at the surface to be given off to the air.

Preliminary tests indicated that two preventive treatments were quite favorable — the use of a 3-in. topping of 1/8- to 1/2-in. gravel on the soil and the use of heavy, mineral surfaced, roll roofing to cover the soil. From visual observations the crawl spaces treated appeared to benefit by either method, but costs were in favor of the roll roofing.

When ventilation was added to the walls of the loft spaces of a test building of the 72-apartment project, eliminating the suction effect of the roof ventilators to the crawl spaces, it was noted that the crawl spaces became rapidly wetter.

All trouble was apparently eliminated in the test buildings when ventilation to the extent of 1/1500 of the building area was cut into the crawl spaces, when this same ventilation area was added to the loft space and when the crawl space ground surface was covered with the mineral surfaced roofing. These corrective measures were then adopted for the entire project with no trouble reported during the winter of 1946-1947.

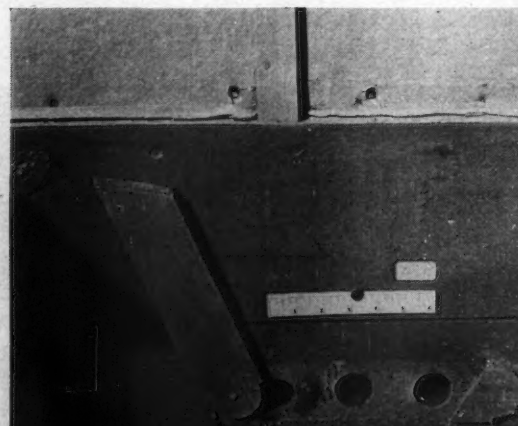
War Housing Survey

In one wood frame project in the war housing survey where crawl spaces were almost completely closed up the year

round, 16 first floors had rotted out in four years, to the extent that they had to be replaced. In six years it was necessary either to renew or to make major repairs to all of the 200 units. On this project the ground in the crawl spaces had been allowed to remain uneven so that in many places dirt was in actual contact with the wood joists and girders. Much of the rotted lumber, however, was not at locations where dirt was in contact with it; therefore, a major cause of this needless, costly repair job could be attributed to unventilated and closed up crawl spaces.

On one project in the Central States, closed-up crawl spaces resulted in moisture contents in the wood as high as 50 per cent and the complete delamination and separation from framing members of a plywood soffit. The plywood used was

Feeble gesture at ventilating 640 sq. ft. crawl space. Only nine of these 1 3/8 in. holes were provided. Dampness caused condition shown at bottom opposite page



of the moisture resistant type, but the glue used for assembly of plywood to framing members was not a waterproof adhesive.

Moisture from the ground in other projects delaminated and softened plywood flooring so that it acted almost like a sheet of rubber; moisture also condensed on blanket insulation, adding extra weight which caused the insulation to drop out from between the joists. When this occurred the insulation rested on the ground and acted as a wick to bring up more moisture.

Delamination of plywood roof sheathing and condensation on nails through any kind of roof sheathing was often found, and directly traced to wet crawl space conditions where humid air was raised through thermal differences to cold, inadequately ventilated roof surfaces.

Job specifications were found which stated that crawl space ventilation might be closed up in winter where heat loss through the floor would be excessive. Frequently construction details provided doors and slides to close ventilation for both crawl spaces and loft spaces.

SUMMARY AND RECOMMENDATIONS

1. Inadequate attention to treatment of crawl space floors and deficiencies in ventilation of crawl spaces have in the past been the sources of major condensation trouble.

2. Since data indicate that total moisture from crawl spaces may be far in excess of that from normal living habits of occupants, and since equal amounts of ventilation are more effective in a loft space (less obstructions and more wind sweep), the crawl space should have more ventilation than the loft space.

In the absence of special, competent engineering data on a given project, the following guides may be expected to guard effectively against troubles that have been reported in this article.

Crawl Spaces

Ventilation (free area) in crawl space walls should equal 2 sq. ft. per 100 ft. of building perimeter plus 0.5 per cent of the building area. This amount allows for some decrease in effectiveness due to clogging of screens and growth of shrubbery.

Loft Spaces or Attics

When the roof slope is more than 3 in. per ft. and there is no effective vapor barrier in the top story ceiling, ventilation should be installed in the gable ends as high as possible with free access to all other enclosed spaces between the living quarters and the roof in the total amount of 1/300 (free area) of the reflected roof area.

When the roof slope is less than 3 in. per ft. and there is no effective vapor barrier in the top-story ceiling and the ventilation is at the eave line or close to it, ventilation of not less than 1/150 of the reflected roof is recommended. All spaces in attic or loft should, of course, be interconnected.

Where an effective vapor barrier is assured in the top-story ceiling, loft or attic space ventilation specified may be greatly decreased. Such decrease may well be as much as 90 per cent where controlled construction is assured and walls or crawl space do not contribute to moisture supply in the attic or loft space.

If crawl space floors are covered with mineral surface roll roofing in an effective manner, the specified wall ventilation may be reduced as much as 90 per cent for controlled construction.

3. When relying on ventilation only for condensation control in the crawl space and the loft space, the floors over the crawl space and the ceilings under the loft or attic spaces should have good insulation properties. Mechanical lines in ventilated crawl and loft spaces should also be insulated. Good practice recommendations on insulation are given in "Performance Standards," a recent publication of the HHFA.

4. Loft or attic spaces should not be ventilated through the roof as the drawing on page 146 indicates. Existing building codes and even model basic codes now being written are not clear on this subject, and are being interpreted to prohibit ventilation in side walls of loft spaces. Such practice is dangerous.

5. Attention is directed to other possibilities in guarding effectively against prolonged condensation. Crawl spaces may be vented by ducts through the roof, opening directly into the crawl space below the first floor. Treatments of soil other than covering with roofing show promise. Sufficient data, however, have not as yet been gathered and analyzed to allow good practice recommendations to be established.

6. Trouble should not be invited by providing closing devices for needed ventilation.

7. For crawl space construction the following good practice requirements for taking care of matters other than the condensation problem under discussion are, of course, still recommended:

- (a) adequate headroom for the purpose of maintaining equipment;
- (b) proper slope of outside grading away from the building;
- (c) possible drains in the crawl space if the floors are below outside grade and of a soil composition not allowing seepage;
- (d) full 18 in. clearance between ground and bottoms of wood framing or other material subject to attack by termites;
- (e) ready access to all parts of crawl spaces for inspection against deterioration and termites.

CONCLUSION

As more data are acquired, readily understood and applicable functional requirements for crawl space design may be developed. Such a functional requirement may well be substantially:

"The design shall be such as to reasonably assure lack of prolonged condensation on any surface either exposed or enclosed (including equipment) of any part of the dwelling or building."

One way of accomplishing the desired result is by adequate ventilation; however other means of doing the job adequately are bound to be perfected.

The experience data and recommendations were compiled to create a better understanding of the effect crawl spaces may have on dwellings and other buildings. HHFA Technical Staff hopes that they will result in more adequate and complete recognition of the problem by architects, engineers and builders as shown in future plans, specifications and details.

Damp crawl space and insulated wall sections accelerated destruction of sheathing boards



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ENGINEERING APPROACH TO HOUSE DESIGN

Bureau of Standards report suggests design methods for determining adequate strength of houses without waste of materials

IN carrying out an extensive research program on building materials and structures, the National Bureau of Standards has developed an engineering approach to house design which promises substantial aid to the building industry. The application of engineering principles to the design of houses, as presented in a forthcoming Building Materials and Structures Report*, provides a complete and logical method for determining allowable loads for walls, floors and roofs. Suggested methods for designing small houses to have adequate strength without waste of material are described and illustrated in considerable detail. The report is a pioneering attempt to apply engineering principles in the design of houses; further studies will no doubt be needed before universally accepted methods are developed.

The need for such a report has not come about because houses in general need to be stronger, for few fail, but largely to judge how much material is superfluous. Strength of houses has been made adequate in the past by patterning them after those which have withstood the test of service conditions. Available service records, however, do not provide accurate criteria for judging how much excessive material is being used.

Subjecting complete houses to known loads is very expensive and time consuming, so Bureau engineers applied loads to specimens which accurately reproduced the most important structural parts of a house. For each element such as walls, floors, partitions and roofs, methods of loading in the laboratory simulated the actual loads under service conditions. It was possible by this method of test to determine the structural properties of a new construction without waiting for a performance test over a period of years.

The report can be broken down into three major parts: (1) procedure for determining design loads, including calculation methods for wind and snow loads; (2) suggested criteria for determining allowable loads together with a listing of allowable loads for 100 different house constructions; and (3) computation of design loads for a typical

one-story and two-story house for three different locations and comparison of these calculated design loads with allowable loads.

Design Loads

When designing a house for strength, it is essential to know the greatest loads which may be applied to elements of the house during its service life. These are the design loads for compression, transverse, and racking (shearing) loads on walls and partitions and the design transverse loads on roof and floors.

Besides normal loads, walls may also be required to withstand concentrated loads, that is, large forces over a small area such as a ladder placed against either face. Impact loads may be applied accidentally to a wall, for example, by a coal truck backing against the outside or by a person or bookcase falling against the inside face of the wall. Con-

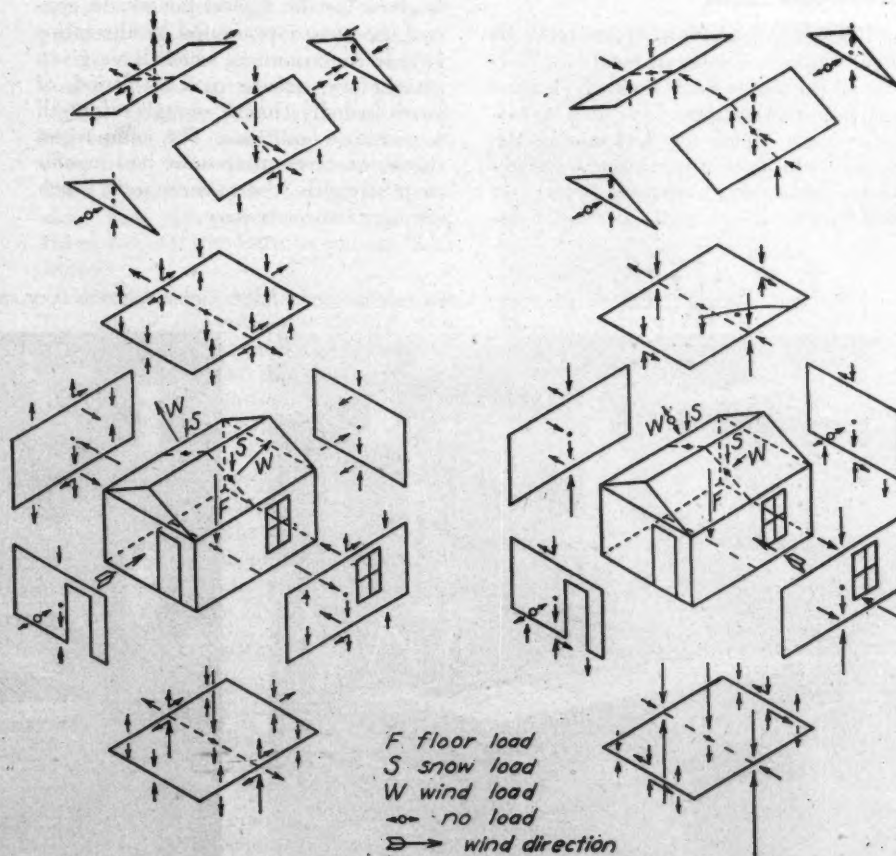
centrated and impact loads, to a considerable extent, are unavoidable under service conditions.

Racking (shearing) loads are applied to a wall by intersecting walls against which a wind is blowing. This effect is simulated in the laboratory by forces at diagonally opposite wall corners.

The same kinds of forces act on load-bearing partitions as on outside walls, but their magnitudes may differ. Non-load-bearing partitions are not designed for compressive or racking loads, which under service conditions, are negligible and may therefore be ignored. However, impact and concentrated loads, through accident, are sometimes applied to non-load-bearing partitions.

Floors are subjected to transverse, concentrated and impact loads. Transverse loads result from the weight of furniture and persons; concentrated loads occur under the legs of heavy

Application of mechanics to house design yields this diagram of reactions on a house



*BMS 109, Strength of Houses: Application of Engineering Principles to Structural Design, Herbert L. Whittemore, John B. Collier, Ambrose H. Stang, and Vincent B. Phelan. Obtainable from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

furniture; and impact loads are caused by objects falling or persons jumping on the floor.

Roofs must withstand transverse and concentrated loads. The former type is caused by wind and the weight of snow or workmen; the latter by the weight of material and tools during construction or repair of the roof.

In the body of the report methods of calculating design loads begin with a graphic illustration of reactions on each element of a simple house.

After these reactions are explained, the report takes up the design of individual house elements. Roof design loads are calculated for a typical house in Madison, Wisconsin. Next follows the method for calculating design loads on hip and valley rafters. After describing calculations for design loads on walls, recommended methods are discussed and illustrated for distributing vertical reactions throughout a wall section. The design section then concludes with partitions and floors.

For determination of wind and snow loads, weather bureau information for maximum wind velocities and snow depths were evaluated and adapted to isogram maps. These maps, used in conjunction with included graphs, permit the computation of wind and snow loads.

Allowable Loads

Perhaps the reason adequate methods have not been developed before for finding all the design loads for each element of a house is that there have been no satisfactory methods for determining the allowable loads on a particular construction. Allowable transverse loads on wood-frame floors and roofs are com-

puted frequently, but these methods cannot be applied with confidence to pre-fabricated sheet-steel floors or to other unusual constructions. In particular there are no accepted methods for computing allowable impact or racking loads on any construction.

The authors of the report believe that for house construction, loading tests in a laboratory are much more satisfactory than any computational methods. Laboratory tests provide a quick and economical means for developing a floor, wall or roof construction to have the necessary strength at the lowest practicable construction cost. Both the materials and the design can be changed repeatedly until the most satisfactory results are obtained. This report discusses the basic considerations for selecting an allowable load from the laboratory data, based on strength and safety only. It should be a simple matter for anyone to modify the criteria to comply with other essential requirements.

Typical House Design

Design loads for a typical one-story and two-story house were computed for three locations, Los Angeles, Calif., Miami, Fla., and Portland, Maine, representing extremes of snow and wind loads. The ratio of the allowable loads to the design load for each of 100 constructions is given for the typical houses. In general the picture presented by the ratios is that constructions which have given satisfactory service over a period of years usually have enough strength for severe conditions. The comparison shows, however, that some had insufficient strength while others were much stronger than necessary.

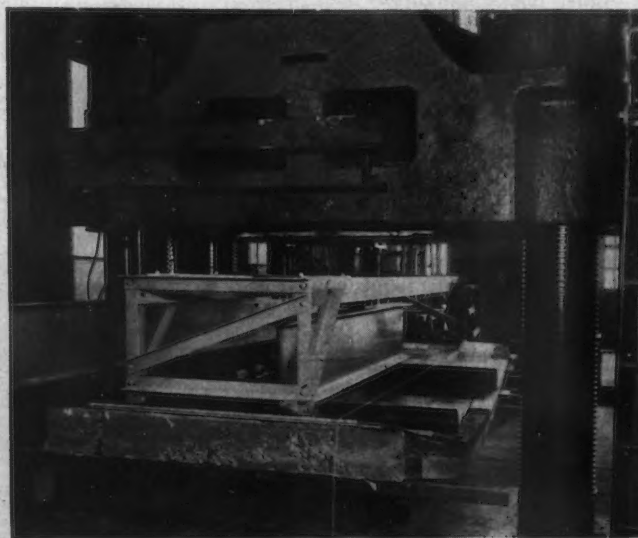
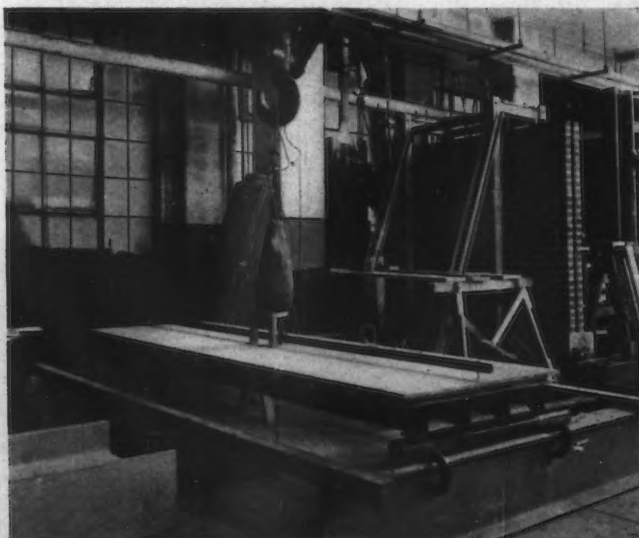
Other Features

One important feature of the proposed method for obtaining design loads is that design loads for fastenings, such as roof to wall, are easily obtained. Consideration of a number of usual fastenings shows that they have only a fraction of the strength necessary. Inadequate fastenings probably account for much damage from severe storms. If the strength of all fastenings were ample for any load expected, the increase in cost of the house would be small and failures would be prevented.

Materials and mode of fabrication favorable to high strength and other factors are discussed for each group of material — wood, steel and masonry. To cite one example, there is an indication that for wood-framed walls, the allowable load is greater when the facing material (plywood fiberboard) is glued to the studs than when it is nailed. Whether to glue or nail remains an economic problem which the builder can solve only after making tests and studying costs.

The engineering approach to strength of houses as presented in the Bureau of Standards report should open the way for designers to introduce unconventional materials and unusual methods of fabrication through laboratory tests to determine whether such constructions have adequate strength. Such data will greatly shorten the time required to develop and obtain acceptance of new types of constructions for houses. At the same time, a substantial saving of materials as well as improved protection against storm damage should be a welcomed result.

Left: actual service conditions simulated for impact on wood floor. Right: concrete floor specimen being tested for transverse load



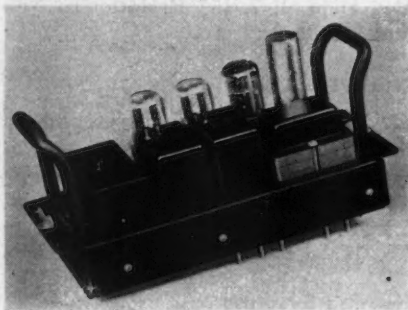
PRODUCTS for Better Building

AIR CONDITIONING CONTROL

Designed to provide added thermal comfort and operating efficiency in the heating, cooling and ventilating of factories, office and commercial buildings is a new electronic control system.

Extreme sensitivity to temperature change, flexibility and simplicity are the advantages claimed possible through the use of electronic circuits.

Essentially, operation of the new air conditioning control is based on the fact that the electrical resistance of the small coil of wire used in the thermostat changes with a change in temperature. Through the tubes of an electronic relay, the change can be measured and amplified enough to operate the control motors which, in turn, position the valves and dampers of the heating or air conditioning system.



Electronic relay of air conditioning control system employs standard radio tubes

The basic units of the control include a room thermostat, duct and immersion thermostats, an electronic modulating motor and an electronic relay.

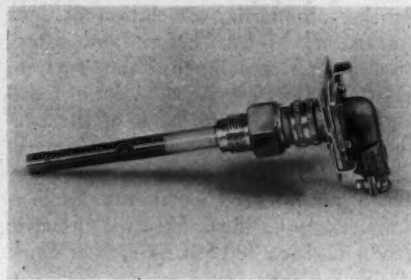
An important feature of the control is said to be the ease with which compensators may be added which change the inside temperature in accordance with the outside temperature.

Single thermostats can be used for both heating and cooling with automatic change-over from one to the other at any selected temperature level.

The room thermostats of the control system are held to their mounting brackets by the means of clips so that they may be removed easily and quickly. The units include a temperature selection lever on both the outside and inside of the cover. If desirable, as in the case of factories and commercial buildings, the external lever and dial can be removed so that the passerby will not be able to tamper with the control setting.

Duct and immersion thermostats are said to maintain selected water or air temperatures at all times so that adequate supplies will be available when called by the space thermostats.

The tubes used in the amplifier unit are standard radio tubes which, because they operate well below their design load, are said to function at a minimum for several years before they need changing. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



Duct thermostat used to maintain selected temperature for air conditioning control

ELEVATOR CONTROL SIGNAL

A prominent feature of a new control system for elevators is a small electron tube located in the landing fixture which permits persons desiring to use the elevator to stop it by merely touching a pushbutton.

When a person presses either an up or a down pushbutton, the call is registered and the car automatically stops level with the floor and the doors open. The operator is relieved of all duties except pressing buttons in the car to register the destination of passengers, closing the door and starting the elevator.

The electron tube is behind each button-like disc in the landing fixture at each floor. When a person touches a disc, a translucent arrow lights up to show that the call is registered. The tubes behind the buttons act as light sources.

As long as no call is registered at a landing, no current flows through the electron tube. Current flows in the tube circuit as soon as the pushbutton is pressed and is maintained until the car stops at the desired floor.

Simplification of installation and elimination of many mechanical devices is claimed for *Electronic Signal Control*. The new landing fixtures, for example, are said to require considerably less wiring than old style fixtures. Otis Elevator Co., 260 11th Ave., New York 1, N. Y.

FIBERGLAS FABRICS

A treatment called *Coronizing* is said to impart improved handling, draping and cleaning qualities to *Fiberglas* curtain and drapery fabrics.

The first fabric in the new *Coronized* line to be given national distribution will be a heavy-weight marquisette cur-

tain material, in a range of pastel shades, designed primarily for use as fire-safe curtains in hotels, theatres, night clubs, schools and in other contract installations handled by architects, decorators and industrial designers.

In addition to their other properties, these fabrics are said to be wrinkle-resistant and water repellent. The fabrics can be hand or machine sewn like any other fabric; and it is claimed that they can be hand or machine washed or dry cleaned by conventional methods. Owens-Corning Fiberglas Corp., 16 E. 56th St., New York 22, N. Y.

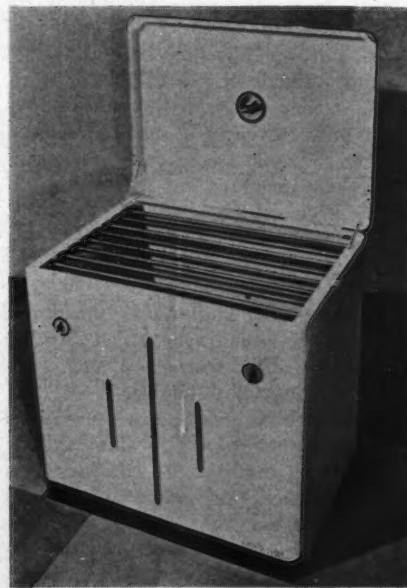
LAUNDRY DRIER

A stationary type laundry drier has been recently introduced in which the garments, linens, etc. to be dried are draped over aluminum rods and dried by forced-circulated hot air.

Advantages claimed are: (1) there is no wear and tear on the wash; (2) articles are dried smooth and unwrinkled and (3) woolens may be dried with no perceptible shrinkage.

Heat is produced by a heavy-duty electric heating element, equipped with temperature control similar to that used on electric stoves. An automatic cut-off protects against overheating. Air circulation is provided by means of a motor-driven fan.

The *Barton Drier* measures 36 by 38½



Material is draped over aluminum rods in this stationary type laundry drier

by 36½ in. The steel cabinet is finished in white enamel with black and chrome trim.

Aside from single dwelling and apart-
(Continued on page 184)

MANUFACTURERS' LITERATURE

Module Furniture Units

Module Magic. The complete line of modular furniture units made by the Mengel Company is shown in this booklet. By using a special type of screw connector, many combinations of units can be assembled. Since each unit is designed on a 6-in. module, many combinations are possible. Graph paper and line drawings of all the units to scale are included in the booklet for use in working out preliminary sketches of combinations. All units are made of mahogany in a "natural" finish. 16 pp., illus. The Mengel Company, 1122 Dumesnil, Louisville 1, Ky.*

Metal Trims

Chromedge Metal Trims. This catalogue on metal trims and their uses shows more than 650 shapes and sizes of *Chromedge Metal Trims* and includes detailed drawings with installation instructions and suggestions for decorative trim applications. All trims are pictured actual size, handily arranged, and fully indexed. 69 pp., illus. B & T Metals Co., Columbus 16, Ohio.*

Architectural Plywood

Weldwood Stock Sizes. The United States Plywood Corp. announced recently that architectural weldwood plywood, previously custom made to specification only, is now available in stock sizes. A new illustrated brochure lists the panels currently in stock at United States Plywood warehouses, together with their retail selling prices. United States Plywood Corp., 55 W. 44th St., New York 18, N. Y.*

Glass Block

Daylight In Industrial Buildings. Outlines the advantages which *Insulux* glass block offers to owners and operators of industrial buildings.

The booklet is arranged in ten sections embracing such topics as the daylight transmitting qualities of *Insulux* glass block, its insulation value and savings in fuel attained from its use. The last three sections are devoted to design descriptions of *Insulux* glass block, architectural details, and specifications. American Structural Products Co., Toledo 1, Ohio.*

Merchandising Lighting

The Right Ways To Light Your Merchandise. Covers many phases of display and merchandise lighting such as: light-

ing for semi-service merchandise, light-for-style merchandise, accent lighting, showcase lighting, wall display lighting, window lighting, store front lighting, lighting standards, correlation of light and color. Many "before and after" photographs accompany the text to illustrate the various principles of lighting described. In the back of the brochure is a section of equipment suggestions which shows the type of bulb or fixture to be used for many applications. 24 pp., illus. Sylvania Electric Products, Inc., 500 5th Ave., New York 18, N. Y.*

Framing Anchors

Here's A Better Way To Build The Industry Engineered Home. Pamphlet containing detail drawings of many of the places that *Teco Trip-L-Grip* framing anchors can be used to join structural members in an industry engineered house. 4 pp., illus. Timber Engineering Co., 1319 18th St., Washington 6, D. C.

Roof Tile

Booklet describes the physical properties and construction specifications of *Kaylo* insulating roof tile. The first section of the booklet is devoted to a general description of *Kaylo Roof Tile*, a structural unit having high insulating value rather than mere roof insulation. The second section of the booklet lists specifications, design data, and details. 8 pp., illus. John I. Carr, sales promotional manager, American Structural Products Co., Toledo 1, Ohio.*

Air Conditioning

(1) *McQuay Heating Coil Catalogue No. 300*, (2) *Heating Coil Data Bulletin*, (3) *Cooling Coil Catalogue*, and (4) *Cooling Coil Data Bulletin*. These brochures show redesigned *McQuay* heating and cooling coils with the new plate-type ripple fins as well as stronger and more versatile coil casings. 28 pp., 28 pp., 36 pp., 40 pp. resp., illus. *McQuay, Inc.*, 1600 Broadway N. E., Minneapolis 13, Minn.

Fan Speed Control

Precision Speed Control for Boiler Draft Fans with the Regutron Controlled Magnetic Drive (No. 4400-TEC-1078). Booklet discusses principles of operation with graphs, diagrams and installation pictures. Describes how *Adjustable Speed Magnetic Drive with Regutron Control* provides wide range, smooth,

precise, rapid and dependable speed control of boiler draft fans. 20 pp., illus., graphs, diagrams. *Electric Machinery Mfg. Co.*, Minneapolis 13, Minn.

Cooling Towers

Binks Induced Draft Cooling Towers With Masonry Walls (Bulletin No. 38). Pamphlet contains information on the subject of masonry-type cooling towers, to be designed by the architect or engineer and built of stone, brick, concrete, structural tile, etc. Also discussed are the merits of spray-filled or deck-filled masonry cooling towers. Tower capacities, dimensions, fan sizes, and other data are included. 4 pp., illus., details, tables. *Binks Manufacturing Co.*, Water Cooling Div., 3114-40 Carroll Ave., Chicago 12, Ill.

Cork-Covered Staircases

Stairway of the Stars. Illustrates the ways that *Corinco* cork tile can be used attractively as well as for practical reasons on staircases. *Cork Insulation Co.*, Dept. R-7, 155 E. 44th St., New York 17, N. Y.*

Glass Coating

Skyco No-Glare. Folder describing a light blue translucent liquid that is brushed or sprayed on glass to reduce glare and filter out heat producing infrared rays. 2 pp., illus. *The Skybryte Co.*, 3125 Perkins Ave., Cleveland, Ohio.

Heating Systems

Thrush Flow Control System (Form FCE-648). Booklet devoted to engineering information on the forced circulating *Thrush Flow Control System* of hot water heat. Installation data, wiring diagrams and typical details on radiant heating as well as conventional type hot water heating systems are presented. 20 pp., illus. *H. A. Thrust & Co.*, Peru, Indiana.*

Young Heat Transfer Products. Covers complete range of heat transfer products including convectors, unit heaters, air conditioning equipment, radiators, aircraft products, heat exchangers, jacket water coolers and large capacity and standard size cooling and condensing units. All units are pictured and described. 20 pp., illus. *Young Radiator Co.*, Racine, Wis.*

Pittsburgh's Great Institutions Join Forces for Central Heating. Detailed account of how a group of cultural, educational and medical institutions cooperated to achieve a practical central heating system covering an extensive area of the Oakland district of Pittsburgh. The booklet shows a complete plot plan of the area served and contains considerable engineering data and technical information about the system. 12

(Continued on page 200)

* Other product information in *Sweet's File*, 1948.



three things to remember

about Sound Conditioning...

first: THAT NO NEW BUILDING IS MODERN WITHOUT IT...

Today it is known that noise and poor hearing conditions make people uncomfortable and lower their efficiency. This has made sound conditioning as important as good lighting in the specifications for modern buildings—commercial, school, hospital, or church. *That is why the number of new building installations of Acousti-Celotex sound conditioning has more than doubled in the last two years.*

second: THAT IT MAKES OFFICE SPACE EASIER TO RENT...

A building with Acousti-Celotex sound conditioning is easier to rent because it provides a better working environment—reducing employee fatigue, increasing accuracy and insuring a greater volume of work. *This is one of the reasons why more buildings of all kinds have been sound conditioned with Acousti-Celotex* products than with any other material.*

third: THAT SOUND CONDITIONING MATERIALS ARE NOT ALL ALIKE...

Two materials may have identical Noise Reduction Coefficients, yet differ widely in use and application. Celotex acoustical products include materials for every type of noise reduction or acoustical correction problem. *That is where our quarter century experience in sound conditioning may be a real help to you...in selecting the right product for a particular specification.*

YOU ARE INVITED to submit your acoustical problems to a trained sound technician—your nearest distributor of Acousti-Celotex products.

His judgment gives you the benefit of the accumulated skill of a quarter century in sound conditioning. Write us for the name of your nearest distributor in the United States or Canada. In the meantime, you'll find Acousti-Celotex products listed in Sweet's File, Section 11-A3. Sound conditioning is a sound investment.

*REG. U. S. PAT. OFF.

THE CELOTEX CORPORATION, CHICAGO 3, ILLINOIS



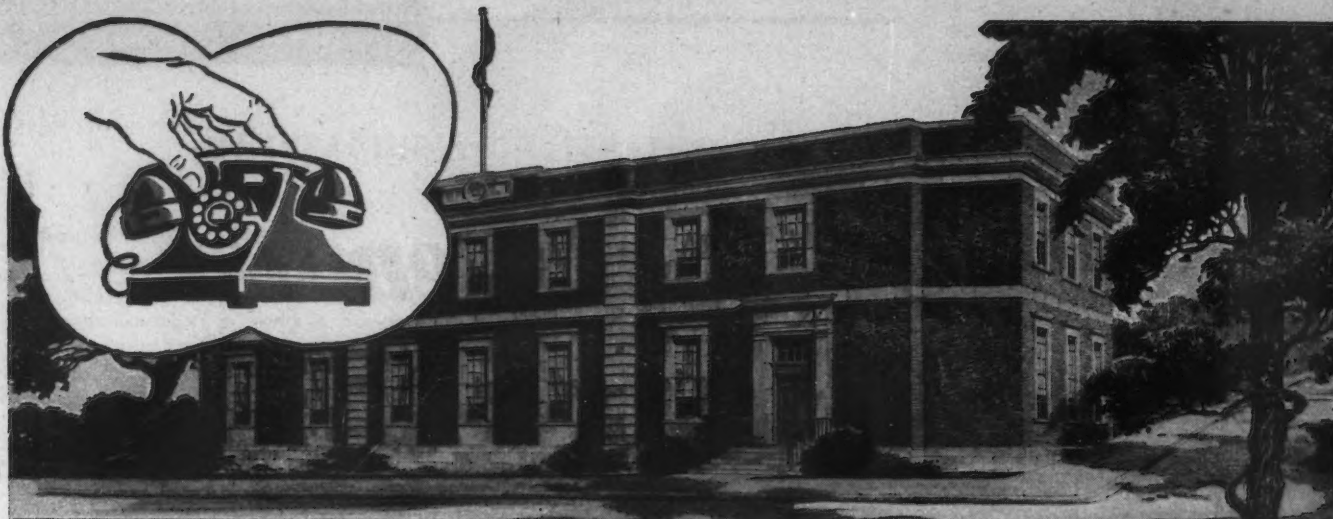
ACOUSTI-CELOTEX

TRADE MARK

REG. U. S. PAT. OFF.

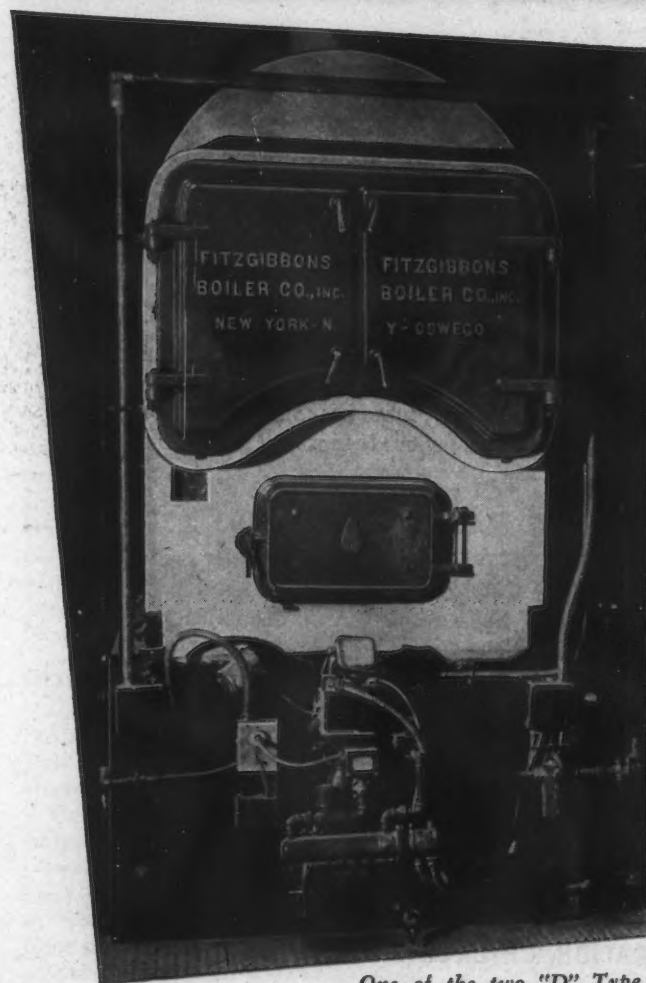
Sound Conditioning

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM



THE FITZGIBBONS BOILER

Reg. U. S. Pat. Off.



"D" TYPE brings
modern heating comfort
to this modern telephone
building —

The new, Towson Dial Center of the Chesapeake and Potomac Telephone Co., Baltimore, Maryland demonstrates how beauty, utility and comfort engineering can combine with gratifying success.

Two "D" Type Fitzgibbons Steel boilers, oil fired, apply their exceptional quick-heating qualities to the maintaining of even temperatures throughout the building, while at the same time achieving high fuel savings by the speed with which they respond to burner operation. Short firing periods with resulting low fuel consumption, are a well-known characteristic of Fitzgibbons steel boilers.

"D" Type boilers are A.S.M.E. built, Hartford inspected, and S.B.I. rated. Available in sizes from 2680 to 42,500 sq. ft. steam, EDR, mechanically fired. Also available for coal hand fired. Write for catalog.

One of the two "D" Type Fitzgibbons boilers which serve the Towson Dial Center (shown above) — recently completed for the Chesapeake and Potomac Telephone Co. of Baltimore, Md.



Reg. U.S. Pat. Off.

MEMBER



Reg. U.S. Pat. Off.

Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK 17, N. Y.

Manufactured at: OSWEGO, N. Y.

Sales Branches in Principal Cities

INDOOR-OUTDOOR PLANTING BEDS: Part 2

By Henry B. Aul, Landscape Architect

(Continued from page 144; continued on page 157)

PLANTS FOR INDOOR WINDOW GARDENS	Full Sunlight South Window	Some Sunlight East & West Windows	Full Light North Window	Flowering Plant	Foliage Plant	Vine or Trailer	Season of Top Attractiveness *	Rest Period Required	Rooting and/or Grow- ing Period Required	Minimum Care Required	Tolerant of Gas	REMARKS
Abutilon hybridum Flowering Maple	X	X		X		Wntr						Pinch out tips of young shoots to keep bushy.
Achimenes grandiflora, etc.		X		X		Spr Sum	X	X				Gloxinia-like flowers.
Annuals—Alyssum, Nicotiana, Garden Balsam, Marigold, etc.	X			X		Wntr		X				Self-sown seedlings may be brought indoors in fall.
Aglaonema commutatum, Chinese Evergreen		X	X		X	All Year				X		Foliage plant of rugged con- stitution. Several species.
Azalea indicum, Kurume		X		X		Wntr Spr	X	X				Keep cool indoors. Plunge out- doors in summer.
Begonia scharffi, rex, semper florens, etc.		X	X	X	X	All Year						Flowering plants par excellent. Give full sun in winter.
Begonia tuber hybrida Tuberous Begonia			X	X		Sum	X	X				Spectacular summer bloomer. Store dry in winter.
Bromeliads—Billbergia, Cryptanthus, etc.	X	X	X	X	X	All Year	X			X	X	Ornamental flowers and foli- age. Water sparingly.
Bulbs—Hardy forcing, Tulip, Daffodil, Hyacinth, Crocus, etc.	X			X		Wntr Spr	X	X				Unbeatable for cheerful flower color indoors.
Cacti and Succulents	X			X	X	All Year	X				X	Answer to hot, dry situation. Keep on dry side Nov., Dec.
Caladium bicolor Fancy-leaved Caladium		X			X	Sum	X	X				Colorful summer foliage plants. Dormant during winter.
Chrysanthemum hortorum Garden Chrysanthemum	X			X		Fall	X	X				Keep cool indoors.
Cissus rhombifolia, antarctica, etc.		X			X	All Year						Deep colored vines. Withstand heat and dryness.
Coleus blumei Painted Nettle	X	X			X	All Year		X	X			Start new plants from cutting —each year
Dieffenbachia picta		X	X		X	All Year				X		Highly ornamental foliage plant.
Dracaena fragrans varieties Corn plant		X			X	All Year				X	X	Clean cut foliage plants.
Ferns—Boston, Holly, Birdsnest, Maidenhair		X	X		X	All Year						Keep moist at roots. Long favorite foliage plants.

* Wntr = Winter; Spr = Spring; Sum = Summer



DAY-LINE* FIXTURES

now with TURRET* Sockets

Easy and
Foolproof
to Relamp

Now the Day-Line... already the pace-setter among industrial fixtures for simple installation, economical maintenance, and heavy duty service... simplifies the relamping problem. All 40-watt lamp fixtures are equipped with the new TURRET Sockets that make relamping as safe and easy as plugging into a wall outlet.

- ▶ Lamps slip in instantly from either end and stay in. Vibration cannot shake them loose.
- ▶ Spring-action keeps lamps well centered... assures positive floating contact.

RESULT:

Less lamp mortality... lower maintenance costs... more customer satisfaction. Another good reason why it pays to install the DAY-LINE for all your industrial applications!

The DAY-LINE Heavy-duty industrial fluorescent fixtures are designed for two and three 40-watt and two 85-watt lamps. Sturdy, porcelain enameled reflectors... truss-type channel construction... unit or continuous installations. The 40-watt fixtures are equipped with the new TURRET Sockets and open or closed end reflectors.

U. S. Patent Nos. 2317434, D-135375 and D-133458.

May we send you bulletin 3-A-2 with complete details?

*T. M. Reg. U. S. Pat. Off.



010

IT'S EASY TO SEE WHEN IT'S

DAY-BRITE

Lighting

Day-Brite Lighting, Inc. 5465 Bulwer Avenue, St. Louis 7, Mo.
Nationally distributed through leading electrical supply houses.

In Canada:

address all inquiries to Amalgamated Electric Corp., Ltd.,
Toronto 6, Ontario.

TIME-SAVER STANDARDS

AUGUST 1948

ARCHITECTURAL RECORD

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

INDOOR-OUTDOOR PLANTING BEDS: Part 2

By Henry B. Aul, Landscape Architect

(Continued from page 155)

PLANTS FOR INDOOR WINDOW GARDENS	Full Sunlight South Window	Some Sunlight East & West Windows	Full Light North Window	Flowering Plant	Foliage Plant	Vine or Trailer	Season of Top Attractiveness *	Rest Period Required	Rooting and/or Grow- ing Period Required	Minimum Care Required	Tolerant of Gas	REMARKS
<i>Ficus elastica</i> , <i>lyrata</i> , <i>pumila</i>		X		X	X	All Year			X	X		Pumila is a climber. <i>Lyrata</i> is the fiddle-leaf fig.
<i>Fressia</i> species	X		X			Wntr Spr	X	X				Fragrant flowers.
<i>Fuchsia speciosa</i>		X	X			Sum	X	X				Exotic summer bloomer. Rest on dry side in winter.
<i>Hedera helix</i> , species and var. English Ivy		X		X	X	All Year						Well known Evergreen Vine. Keep cool indoors.
<i>Hippeastrum</i> <i>Amaryllis</i>	X		X			Wntr Spr	X	X				Dramatically colorful.
<i>Howea forsteriana</i> Kentia Palm		X		X		All Year			X			Rugged constitution.
<i>Impatiens sultani</i> , <i>holsti</i> , etc.		X	X	X		All Year			X	X		Long season bloomers. Give sun in winter, part shade in summer.
<i>Lantana camara</i>	X		X			Wntr	X			X		Showy flowers. Start new plants from cuttings—annually.
<i>Monstera deliciosa</i> Swiss Cheese Plant			X	X		All Year			X			Unusual, indented leaves.
<i>Pandanus veitchi</i> Screw Pine		X		X		All Year			X	X		Graceful foliage plant.
<i>Pelargonium hortorum</i> Geranium	X		X			All Year		X				New plants started from cuttings.
<i>Peperomia obtusifolia</i> , <i>sandersi</i> , etc.			X	X		All Year						Keep cool. Tolerant of varied light conditions.
<i>Philodendron cordatum</i> Philodendron			X	X	X	All Year			X	X		Good color and constitution.
<i>Phoenix roebelinii</i>		X		X		All Year						A graceful palm. Water sparingly.
<i>Saintpaulia ionantha</i> African Violet		X	X	X		All Year						Remarkable, small-flowering plant.
<i>Schismatoglottis</i> <i>roebelinii</i>		X	X	X		All Year			X			Attractive exotic foliage. Keep moist.
<i>Sinningia speciosa</i> Gloxinia		X		X		Sum	X	X				Large colorful flowers. Store dry in winter.
<i>Veltheimia vividifolia</i>	X		X	X		Wntr	X					Good foliage and flower. Bulb—Keep dry in summer.

* Wntr = Winter; Spr = Spring; Sum = Summer



Durable OAK FLOORING WELCOMES STYLE CHANGES

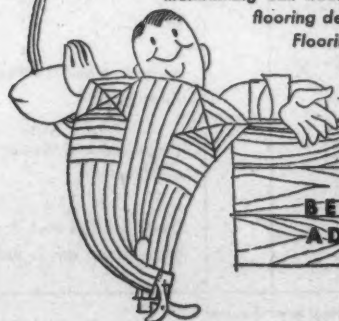
Besides providing initial beauty in a new home, oak floors lend themselves perfectly to future changes in decor.

Completely new color schemes, for instance, find their perfect complement in the warmth and hospitality of oak. A new chair or rug, of whatever style or color, will always harmonize with the charm of natural oak grain and texture.

Appearance and wearing qualities of wall-to-wall carpets are enhanced when laid on oak. They stay firm and smooth, they look better and clean more easily.

Owners thus have a wide latitude for desired changes, knowing that new ideas or styles will meet with a warm welcome, from always beautiful, always durable oak floors.

ASK FOR ARCHITECTS' DATA BOOK—which gives quick and usable information for specifying, laying, finishing and maintaining oak floors. Available from your local oak flooring dealers or from the National Oak Flooring Manufacturers' Association, 814 Sterick Building, Memphis, Tenn.



NEWS FROM CANADA

(Continued from page 10)

lieved to be the first man in Canada convicted of seeking an exorbitant profit on a commodity no longer under a price ceiling.

The fine and costs will almost equal the \$3661 allegedly made by the speculator on 1532 kegs of nails. The normal profit would have been about \$965. Prosecution was launched under a regulation of the Wartime Prices and Trade Board, and Rt. Hon. C. D. Howe, Minister of Reconstruction, has stated that other court actions may follow.

Housing Loans Up

Central Mortgage and Housing Corporation, the Dominion Government's shelter agency, announces that loans approved under the National Housing Act for the first four months of this year are 2½ times greater than those approved during the same period last year.

The score to May 1, 1948, is 4276 new dwelling units valued at \$21,341,680 compared with 1773 units valued at \$8,341,900 for the corresponding period in 1947.

Building Time Unchanged

Dwelling units completed in April took an average 7.7 months to build, according to the latest housing bulletin issued by the Dominion Bureau of Statistics. This represents no speed-up in time over the average for the preceding three months. About ⅓ of the units took longer than nine months to complete. On a regional basis, construction took longest in British Columbia.

Research Program Outlined

A recent issue of *Builders' Bulletin*, published by the Central Mortgage and Housing Corporation, clarifies the Corporation's relationship to the new Division of Building Research established by the National Research Council. The Division is to act as the "research wing" of the Corporation in all technical matters affecting housing, but will in no way usurp the function of a commercial testing agency. The Division's assessment of the merits of new building materials and equipment will be based on test results and other technical data supplied by the sponsors of such products.

The *Bulletin* points out that the Division is to cooperate closely with other agencies of the Dominion Government in connection with special aspects of its work. Since building research must always be linked to local conditions, steps have been taken toward the development of regional units in the Prairie and

(Continued on page 160)

STORE FRONTS *with* SELLEVISION



Archts., Adolph Novak, New York



Van Os & Flaxman,
Archts.,
Shreveport



Nunn & McGinty,
Archts.,
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in a constantly changing
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NEWS FROM CANADA

(Continued from page 158)

Maritime Provinces. Eventually it is hoped to have field activities proceeding in the Central Provinces, British Columbia and northern Canada as well.

It is stated that the work of the Division "will always be primarily of an applied character, although it is hoped eventually to carry out some fundamental studies. Since so much information regarding good building practice is already available, but not in general use, a prime activity of the Division will be the publication of this information in suitable form. . . . At the same time, contacts are being established with larger engineering and building organizations with the view of carrying out research work on actual construction projects."

Two sections of the Division already have been formed: one on codes and specifications, which will administer the National Building Code, and one on soil mechanics.

Mortgage Business Booms

Mushrooming of the amount of money invested in mortgages is shown in a report, recently released by the Central Mortgage and Housing Corporation, on the financing operations of lending institutions in Canada.

The report states that the decline in mortgage loans held by lending institutions which began in 1932 was not checked until 1946. In 1945 the lowest point in 13 years was reached, with \$553 million outstanding. But by the end of 1946, holdings had increased to \$611 million at an annual rate comparable to that of the two years of highest real estate lending, 1927 and 1928.

Cash disbursements on mortgage loan account totaled \$204.7 million in 1947, 45 per cent more than in 1946. Loans for new construction accounted for \$133.4 million, or over half the volume of business done. By far the greatest bulk of lending for new construction was in the residential field, where loans amounting to \$106.1 million, involving 25,582 dwelling units, were made.

D.P.'s in Construction

Canada is anxious to close its labor gap. On June 15, the National Employment Service had over 50,000 vacant jobs on file. The immigration of workers from other countries is being encouraged and, with labor union consent, 30,000 displaced persons are being admitted from Europe. Of these, 11,000 already have arrived. About 2600 are construction workers, most of whom are employed on hydro-electric and railway

(Continued on page 172)

Step-by-Step Demonstration of the Effectiveness of HOLOPHANE Store Lighting

a: Cove lights only: inadequate to do more than provide a background by wall and ceiling brightness.



Cove lights plus CONTROLENSES incandescent inserts: here the only "selling excitement" is directed to merchandise counters—but absence of general lighting causes a pretty, gloomy, under-lit appearance.



c: Cove lights plus HOLOFLUX* fluorescent: minus incandescent inserts: over-all visibility with a desirable general illumination but the counters have faded-out—have lost their selling power.



d: Cove lights plus general fluorescent plus incandescent inserts: Results: a perfect combination of lighting for selling.



*Reg. U. S. Pat. Off.

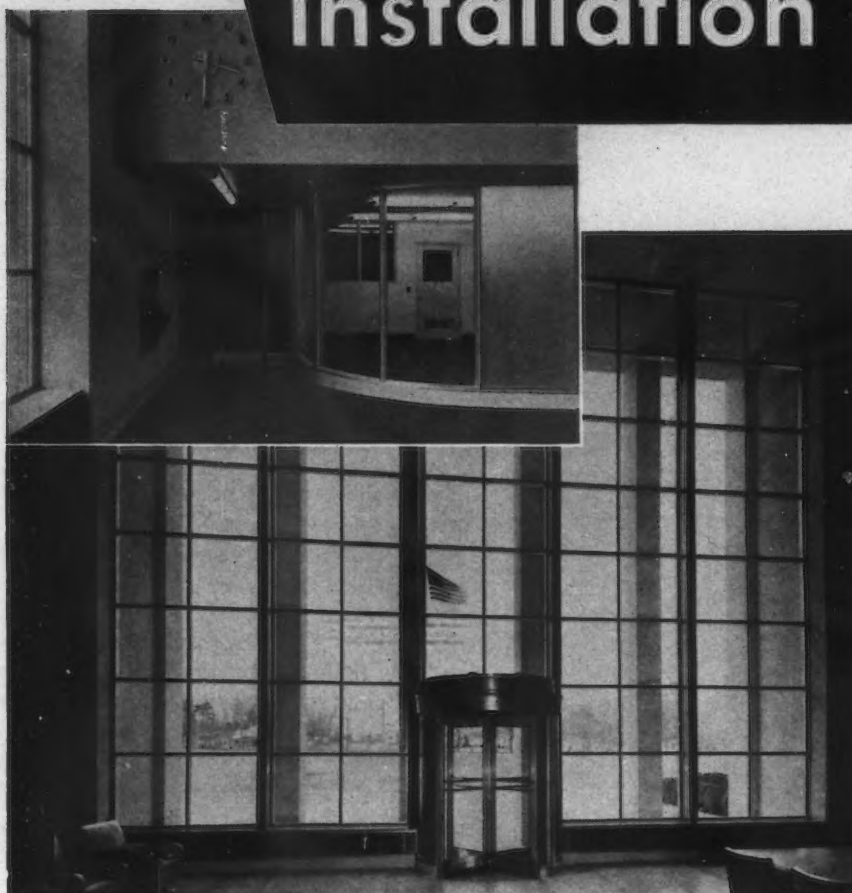
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Albert Kahn, Architect

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- Name Plates
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- Museum Trophy Cases

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THE RECORD REPORTS

(Continued from page 24)



Above, entrance to two of the cottages at Keyes Close, Middlesex, Eng., a housing settlement for the elderly. The 34 cottages are arranged around a center quadrangle, have individual gardens to the rear. Below, exit portico to the road



Homes for the Elderly

Thirty-four single story cottages for elderly men and women have been built by the Hornsey Borough Council in Middlesex, England, as part of its post-war housing scheme. Each cottage consists of an entrance lobby, living room with curtained-off bedroom recess, bathroom, and a small but fully equipped kitchen. Lawns and flowerbeds will cover the center quadrangle on which the cottages face, and small gardens at the rear will be cultivated by the tenants. Known as Keyes Close, the development is one of a number of schemes in Britain for the housing of elderly people.

STORE SHOW HELD

The second international Store Modernization Show was held this year at Grand Central Palace, New York City, from July 6th to 10th. In addition to extensive floor displays by well-known manufacturers of the latest equipment and accessories used in store modernization, the Show presented a series of "clinics" or panel discussions on such subjects as store layout and traffic, color and lighting, displays and fixturing, store fronts, and budgeting for modernization. Many top experts on store design and merchandising participated in the discussions. Among them were architects Richard G. Belcher, Victor Bohm, Jose A. Fernandez, Victor D. Gruen, Morris Ketchum, Jr., Morris Lapidus, Elmer A. Lundberg, Daniel

(Continued on page 164)

HOW TO MAKE DESIGN ECONOMIES PAY OFF



...Specify Fenestra* Steel Panels

Transit sheds 3, 4 and 5 on Pier A, Long Beach, Cal.
Harbor Engineers, Long Beach, Designers. Peter Kiewit
& Sons Co., Arcadia, California, Contractor.

DESIGN PROBLEM: How to construct *economically* and with maximum speed and efficiency 26,500 square feet of canopies to shield three large transit sheds.

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Already famous as a producer of steel windows, Fenestra has applied its steel-fabrication skill to the production of these rugged, noncombustible steel panels . . . and has made them ideal not only for floors and ceilings, but for walls, partitions and roofs. See Sweet's Architectural File for 1948 (section 3c-1) or mail the coupon for full information.

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TYPE D FOR FLOORS. Box beam formed by welding together two steel sections. Side laps interlock to form continuous flat surface. Standardized in 16" width. Depth 1½" to 9". Gages 18 to 12. Type AD available with two flat surfaces.



TYPE C FOR WALLS. Two metal members pressed together, with felt at each side to prevent metal-to-metal contact. Filled with insulation and closed at the ends, at the factory. Standardized in 3" depth and 16" width, in 18 gage painted steel or 16 B & S gage aluminum.



HOLORIB ROOF DECK. Steel sheets reinforced by three integral triangular ribs on 6" centers. Flat surface for mopped application of insulation and roofing. 18" wide. Lengths to 24' to fit. Gages 18 and 20 are standard.

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THE RECORD REPORTS

(Continued from page 162)

Schwartzman, William T. Snaith, and Kenneth C. Welch. The chairman of the panel discussions was Charles M. Edwards, Dean, Graduate School of Retailing, New York University.

The Show was also the scene for the judgment of two recent store design competitions. The first of these was the Store Modernization Show College Competition which called for a design and model of a "Shopping Center of the Future." Fourteen architectural schools and universities submitted solutions. The first prize went to Syracuse University's School of Architecture with a design planned around modernizing a full square block of a Poughkeepsie, New York business district. The senior student design team was composed of E. B. Bruce, D. G. Crounse, and E. R. Shackleton.

The second competition was sponsored by the National Chamber of Commerce and called for the "Best Local Store Modernization" completed between Jan. 1, 1947 and June 1, 1948. The Rifkin and Grammick ladies specialty shop in Trenton, N. J., modernized by Trenton architect Victor Bohm, won first prize. Members of the jury in both competitions were Richard G. Belcher, P. A. Cunnius, Prof. Theodore D. Ellsworth, Jose A. Fernandez, Francis X. Giná, Emerson Goble, Morris Lapidus, Walter McQuade, George Sanderson, Daniel Schwartzman, and E. F. Sibbert.

AT THE COLLEGES

Instructors Needed

Additional instructors in architectural design, structural design and related courses are needed at the schools of architecture for the fall semester, reports Professor Paul Weigel, chairman of the Committee on Employment for the Association of Collegiate Schools of Architecture. Anyone interested in a career in the teaching profession should apply to Prof. Weigel, Kansas State College, Manhattan, Kansas.

New School Proposed

Establishment of a school of architecture by the state of New Jersey, under the auspices of Rutgers University, has been urged by Robert J. L. Cadien, president of the New Jersey Chapter of the A.I.A. and of the New Jersey Society of Architects. Newark would be the preferred location for the school.

Mr. Cadien's proposal followed a report by Marcel Villaneuva, chairman of the Educational Committee of the Society, that complaints had been received from many members of the profession

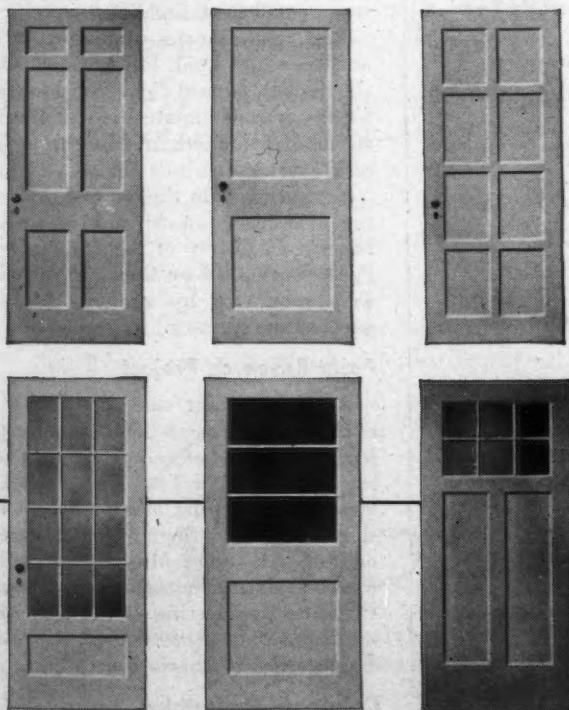
(Continued on page 166)

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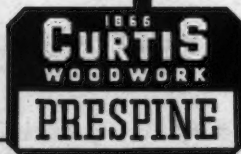
Takes Any Finish—The Prespine surface provides an excellent bond for paint. No grain raising—nothing to cause discoloration. Edges provide better surface to finish. Prespine, too, takes any color stain beautifully.

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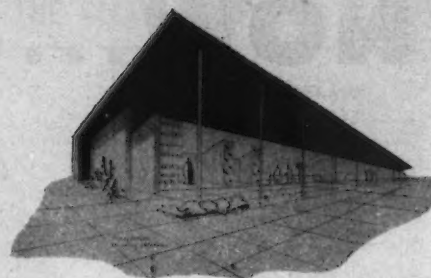
THE RECORD REPORTS (Continued from page 164)

regarding the caliber of GI graduates of private drafting schools in the Newark area, who, having completed their year's course, are now seeking employment in architectural offices.

A check of the type of instruction given in such schools, the report stated, "disclosed that the courses were not organized or conducted by architects for architects, but to simply produce junior draftsmen with very little architectural background. Despite curriculum defi-

ciencies, however, a still more important fact should be recognized: that is, that any young man after a single year of drafting experience still knows practically nothing, regardless of who his tutor is."

New Jersey, the report continued, at present offers no facilities for architectural students, and the state badly needs an accredited School of architecture recognized by the National Association of Registration Boards. "Except for the



Richard Nevara's design for a small bank (above) won first prize in the Beaux-Arts Institute of Design competition for architecture students, and Marvin E. Goody's entry (below) was awarded second place



very few students able to go to Princeton," it commented, "New Jersey boys have to try their luck in New York or Pennsylvania, mostly in vain."

Beaux-Arts Prizes Awarded

Richard Nevara, sophomore in the department of architecture at the Chicago Undergraduate Division of the University of Illinois, was awarded first place in a nation-wide competition for architecture students sponsored by the Beaux-Arts Institute of Design and held at the Navy Pier division of the University of Illinois on June 26. The design problem was a small bank building.

Mr. Nevara's prize-winning entry was an "open air" bank for Arizona, which the judges termed "equally adaptable for any type of climate." It was awarded the annual Kenneth M. Murchison prize of \$25.

Second place in the competition, and the Murchison award of \$15, went to Marvin E. Goody of the University of Pennsylvania. More than 350 drawings were submitted by students from all parts of the country.

Paint Research Project

A special paint research project to evaluate methods and materials for preparing surfaces before painting has been set up at the New York University College of Engineering under the sponsorship of the Army Signal Corps. Director of the work is Dr. Max Kronstein, research associate and adjunct professor of Chemical Engineering. Dr. Charles Marsel, assistant professor of Chemical Engineering, is associate with him.

Columbia Undertakes Surveys

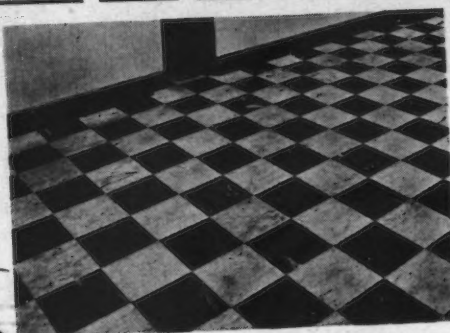
Two hundred Columbia University engineering students are making detailed

(Continued on page 168)

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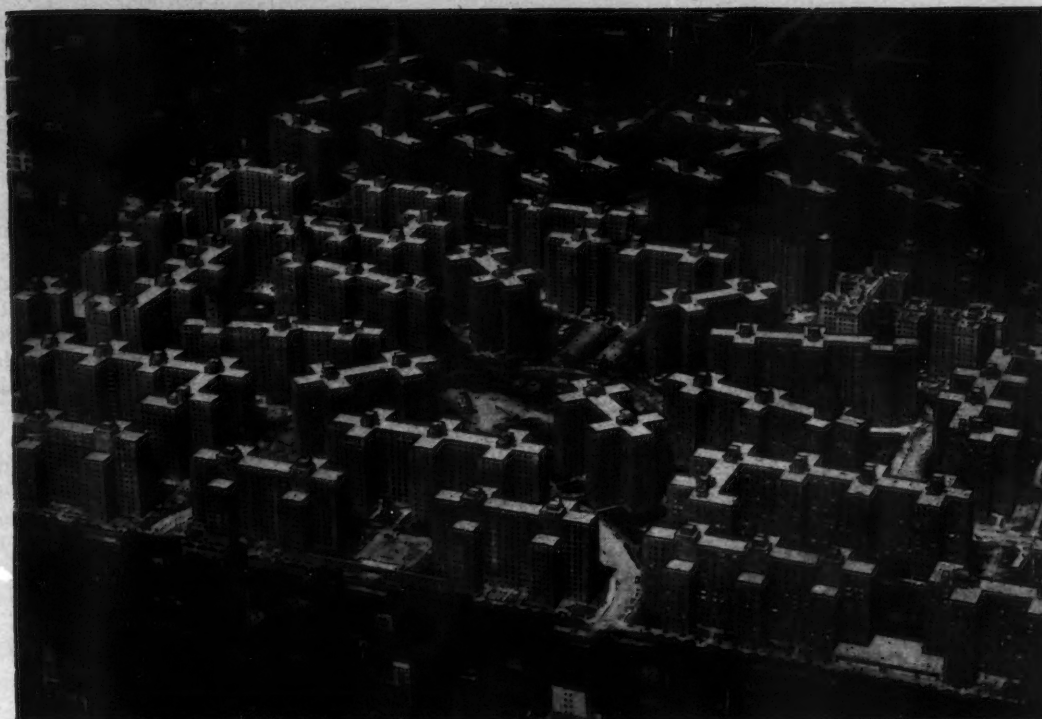
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AR8-48

THE RECORD REPORTS (Continued from page 166)

surveys of the utilities and industrial and civic problems of three Connecticut communities this summer. The results of their studies will be presented to the co-operating communities — Thomaston, Litchfield and Torrington — in the form of detailed reports and specific recommendations for industrial and civic improvement.

The project is being carried out from Camp Columbia, summer camp of the University's School of Engineering at

Lakeside, Conn. The students are divided into groups of from 30 to 60 each, and subdivided into teams, each of which is concentrating on a particular phase of community life. Housing, municipal services, water supply and sanitation, communication, and power supplies are some of the subjects being studied.

APARTMENT HOUSE MEDALS FOR 1948 AWARDED

Emery Roth and Louis E. Ordwein,

architects, have been awarded the Apartment House Medals for 1948 of the New York Chapter of the American Institute of Architects. The awards were presented at the Chapter's annual lunch on June 2nd.

Mr. Roth's medal was awarded for the apartment house at 300 E. 57th Street, Manhattan, in the "over six stories" group. Mr. Ordwein's was given for the Garden Apartment House on the northeast corner of 72nd Street and Third Avenue, Manhattan, in the group of six stories or under. Each building owner will receive a certificate.

The awards were based on buildings erected within the five boroughs of New York City and completed between October 1, 1940 and October 1, 1947, irrespective of cost, income-group to be housed, or method of financing. The competition was open to all architects of the metropolitan area.

OFFICE NOTES

Offices Opened, Reopened

Samuel Juster, Architect, has opened an office at 366 Broadway, New York 13, N. Y.

Alexander Knowlton, Architect, formerly an associate of Edward D. Stone, has announced the opening of offices for the general practice of architecture at 139 E. 53rd St., New York 22, N. Y., and 14 Steamboat Rd., Great Neck, N. Y.

J. C. A. Shepard, Architect, has opened a new office at 3014 E. 12th St., Tulsa, Okla.

New Addresses

The following new addresses have been announced:

Van Evera Bailey, Architect, 543 Prospect Ave., South Pasadena, Calif.

Bates & Rogers Construction Corp., 600 W. Jackson Blvd., Chicago 6, Ill.

Raymond J. Briggs and Associates, 619 Grove St., Boise, Idaho.

Michael DeAngelis, Architect, Cutler Bldg., 42 East Ave., Rochester 4, N. Y.

Henry Dreyfuss, Industrial Designer (New York Office), 4 W. 58th St., New York, N. Y.

Oswald Fischer, Architect, 35-10 Broadway, Long Island City 3, N. Y.

Gaston Gagnier, Architect, 1449 Crescent St., Montreal 25, Canada.

Howard H. Mackey, A.I.A., 1530 You St., N. W., Washington 9, D. C.

Warner-MacNeish, Architectural and Engineering Service, Chamber of Commerce Bldg., 134 Chestnut St., Springfield 3, Mass.

Joseph A. McGinniss, Architectural Specifications, 101 Park Ave., New York 17, N. Y.

Samuel I. Oshiver, R.A., 2128 Locust St., Philadelphia 3, Pa.

M. F. Stern, Architect, 505/506 Diamond House, 29 Parliament St., Cape

(Continued on page 170)



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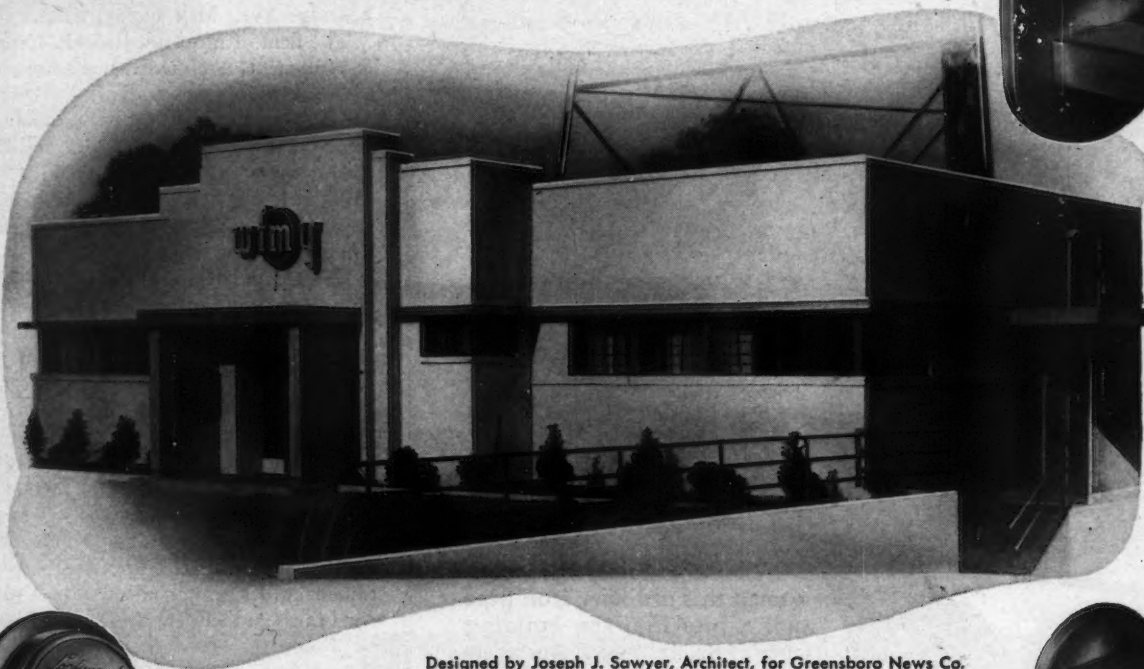
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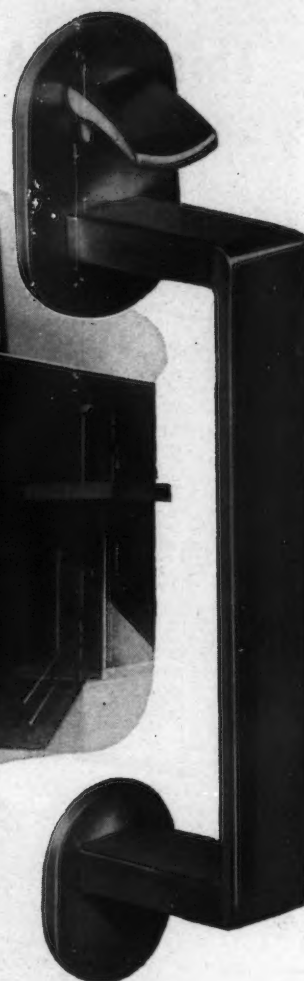
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Designed by Joseph J. Sawyer, Architect, for Greensboro News Co.

Lockwood Ambassador Hardware, selected for all doors in the new WIMY building, Greensboro, South Carolina. Right, Ambassador Entrance Set; left, Ambassador Interior Lockset for vestibule and office doors. All Ambassador Hardware applies directly to doors with concealed screws, lending charm to the design and furnishing complete satisfaction in use.



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THE RECORD REPORTS (Continued from page 168)

Town, South Africa.

William Charney Vladeck, A.I.A., 660 Madison Ave., New York 21, N. Y.

Charles N. & Selig Whinston, Architects and Engineers, Suite 1939, Grand Central Terminal, New York 17, N. Y.

Walter L. Wimer, Architectural Consulting Engineer, 318 W. Pearl St., Butler, Pa.

New Firms, Firm Changes

The firm of Allen, Koehler, Steffes,

Narovec, Architects, was dissolved by mutual consent on May 15, 1948. All unfinished commissions will be completed by Mr. Allen, who will continue to practice under the firm name of Maurey Lee Allen, Architect, with offices in the Zuelke Bldg., Appleton, Wisc.

Roy B. Blass, A.I.A., has announced that he and M. H. Beckman have dissolved their partnership and have closed their firm's branch office in Wilmette, Ill. Mr. Blass will continue to practice

architecture and engineering at the main office, 30 N. LaSalle St., Chicago 2.

Norman Bel Geddes, Industrial Designer, has closed his Rockefeller Center, New York, offices. The Norman Bel Geddes Corporation is now located in Stamford, Conn., and Mr. Geddes himself has offices at 350 Park Ave., New York 22.

Don Hatch, Architect, has joined the staff of Ibec Technical Services Corp. as representative in Venezuela.

The firm name of Johnson, Wallwork and Dukehart, Architects, has been discontinued, and the firm's practice is being carried on by John K. Dukehart, A.I.A., Architect, 802 Dekum Bldg., Portland 4, Ore.

Frederick M. Mann, Jr., Architect, and Eugene E. D. Crawford, Architect, have announced the opening of offices under the firm name of Crawford & Mann, Architects, with offices at 134 Eldridge Ave., Mill Valley, Calif.

The firm of Mauran, Russell, Crowell & Mullgardt, Architects, has announced a change of its name to Russell, Crowell, Mullgardt & Schwarz. Members are Ernest John Russell, F.A.I.A., William DeForrest Crowell, A.I.A., W. Oscar Mullgardt, F.A.I.A., and Arthur F. Schwarz, Jr., A.I.A. Offices are at 1620 Chemical Bldg., St. Louis 1, Mo.

Daniel M. Robbins, Architect, has announced the formation of a new firm, Daniel M. Robbins & Associates, with offices in the Kilpatrick Bldg., Omaha, Neb.

Zay Smith, Richard Barry, Norman Steenhof and Taylor Robinson, formerly comprising the design staff of United Air Lines, have announced the formation of their own design firm, Zay Smith Associates, with offices at 431 N. Clark St., Chicago, Ill. The firm has been retained as design consultants to United Air Lines, and will continue to specialize in design for modern transportation, though expanding its activities to include color consultation, store and residential design.

Harry C. Williams has been appointed general sales manager of The H. K. Ferguson Co., Industrial Engineers and Builders, of Cleveland, New York and Houston.

ELECTIONS

Francis Keally, Architect, has been elected president of the Municipal Art Society of New York, to succeed Charles C. Platt, who had held that office for three years. Also elected were: L. Andrew Reinhard, vice president; Irving D. Harris, treasurer; Thomas H. Creighton, secretary; and Samuel H. Ordway, Jr., counsel.

Richard L. Templin, assistant director of research and chief engineer of tests, Aluminum Co. of America, has been elected president of the American Society for Testing Materials.

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The corrosion that consumed this ordinary iron pipe took a bite into the building owner's pocketbook. Probably that replacement bill took more than a nibble at his confidence in some architect's judgment.

Stop that replacement cost now. Specify Acid Proof Duriron for Chemical Laboratory drain lines . . . and for any other corrosive handling waste system. Duriron simply ignores corrosives. Consult Sweets. Or get complete information by writing for Bulletin 703...today.

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A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work.

projects. A few, hardly 100, are building mechanics, but 400 more are expected in the next group of D.P.'s.

Displaced persons who wish to come to Canada must apply through the International Refugee Organization. They are interviewed by special selection teams visiting the German and Austrian D.P. camps and, if accepted, are transported by the I.R.O. to Halifax. They are assigned, to employers who have requested their services, by National Selective

Service. The employers take them from Halifax to their jobs.

Each D.P. is guaranteed 10 to 12 months work, and may apply for a change of employer if he finds conditions unsatisfactory. He is advanced to full journeyman status as soon as he learns Canadian speech and methods and may join a trade union in the usual way. On the whole, both employers and unions seem pleased with the tapping of this new source of labor.



Same bedroom with single hinged closet door and with parallel sliding doors. Direct access to either half of closet is possible as each sliding door opens to opposite side of door frame. Note added floor space available with sliding doors.



For more "Living" room
USE VANISHING DOORS



Whether the job calls for tiny kitchenette apartments or a palatial mansion, there's no getting around one fact—hinged doors waste space! That is why more and more residential building plans specify vanishing doors for closets, wardrobes, connecting rooms, etc.

With vanishing doors, sliding from side to side, there's no interference with the location of furniture, lighting fixtures, pictures, rugs—nothing in the room gets "behind the door." Used for closets and wardrobes, they permit direct access to entire contents without fuss or bother.

With vanishing doors, sliding from side to side, there's no interference with the location of furniture, lighting fixtures, pictures, rugs—nothing in the room gets "behind the door." Used for closets and wardrobes, they permit direct access to entire contents without fuss or bother.

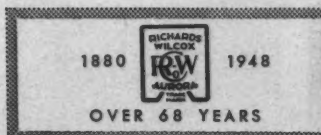
SPECIFY R-W VANISHING DOOR HANGERS AND WOOD-LINED TRACK

For smooth, silent, trouble-free operation, specify vanishing doors installed with Richards-Wilcox No. 719 Vanishing Door Hanger and Wood-Lined Steel Track. No oiling required . . . hanger wheel has Olite self-lubricating bearing, rolls on self-centering woodtrack lining without metal-to-metal contact.

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A HANGER FOR ANY DOOR THAT FITS
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Serviced Land — at Cost

Lots are selling at Toronto's Yorkminster subdivision like the proverbial hot cakes. Why? Because large, completely serviced home sites are offered at bargain prices. The cost of development—installing water mains, hard-surfacing roads, laying storm and sanitary sewers—is included in the price of the land. This represents a break with the practice of levying special assessments on property to pay for improvements.

Comprising 125 acres, Yorkminster is the largest area so far subdivided under the Dominion Government's land assembly scheme. The scheme was made necessary by a shortage of serviced land suitable for housing development on the outskirts of Canadian cities and towns. Projects similar to Yorkminster are under way in Vancouver, Edmonton, St. Boniface, Ottawa, Burlington and Mount Royal. More are being negotiated.

The purpose of the land assembly program is to induce insurance companies and other lending institutions to acquire raw land, subdivide it, install the necessary services and sell lots to private and operative builders. In return, the government guarantees the safety of the institution's investment, plus a 2 per cent return on it. The guarantee period is two years, but may be extended to five. Of course, the institution does not get rich on this basis, but it does get in on the ground floor of some profitable mortgage business.

In the case of Yorkminster, the cost of acquisition and development ran upward of a million dollars. The investment is jointly shared by the Mutual Life and Sun Life Assurance companies. The cost of installing the service was, incidentally, about three times the cost of the raw land.

Yorkminster is a fine example of a completely planned residential subdivision. Space has been provided for parks, playgrounds, schools, apartment houses, a shopping center and service station. There are 403 home sites located on graceful, winding streets. The lots vary in frontage from 50 to 100 ft., the average one having a frontage of 60 ft. and an approximate depth of 130 ft. Prices range from \$20 to \$30 per foot frontage, or about \$10 to \$15 less than the asking price for partially-serviced, comparable lots nearby.

It is expected that the houses built in Yorkminster will cost from \$8500-up. Adequate restrictions will protect the interests of property owners. Plans and specifications must be approved by the government and the assurance companies. The local building code has to be observed. To eliminate speculation, purchasers of lots must start construction within six months.

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THE EIGHTIETH CONVENTION OF THE A.I.A.

(Continued from page 91)

The afternoon seminar on "Retail Business Buildings," under the chairmanship of Kenneth C. Welch, got down to brass tacks on the subject of "Retail Store Design Principles." James A. Wares discussed the twelve major factors in merchandising methods; Walter C. Wurdeman explained the methods of "Department Store Planning and Design;" and Carl J. Kroepel discussed "Moving Stairways."

A seminar on "Dwellings," L. Morgan Yost, Chairman, dealt with "Regional Qualities in Residential Design." The effects of local and regional climatic conditions, historic regional traditions, local materials, and universally available mass-produced materials entered into the discussion presented by Hugh A. Stubbins, Jr., Henry L. Kamphoefner, D. Kenneth Sargent, and Pietro Belluschi.

The annual dinner was so largely at-

tended that it taxed the facilities of the hotel. It was the occasion for the conferring of Fellowships on the following distinguished architects: Leon Eugene Arnal, Minneapolis, Minn.; Pietro Belluschi, Portland, Ore.; Francis Vaughan Bullfinch, Boston, Mass.; Cameron Clark, New York, N.Y.; George Bain Cummings, Binghamton, N.Y.; Gardner Acton Dailey, San Francisco, Calif.; Paul Gerhardt, Jr., Chicago, Ill.; James Byers Hays, Cleveland, Ohio; Edwin H. Luncie, St. Paul, Minn.; Alexander Edward Hoyle, Boston, Mass.; Francis Keally, New York, N.Y.; George Marshall Martin, Cincinnati, Ohio; Edward Fairfax Neild, Shreveport, La.; Edward Livingston Palmer, Jr., Baltimore, Md.; Robert Barnard O'Connor, New York, N.Y.; Leonard Schultze, New York, N.Y.; Fitzhugh Scott, Milwaukee, Wis.; Philip Lindsley Small, Cleveland, Ohio; Joe Frazer Smith, Memphis, Tenn.; Hart Wood, Honolulu, Hawaii.

High point of the dinner proceedings was the presentation of The Gold Medal of the Institute to Charles Donagh Maginnis, and his response with that inimitable wit and flow of characteristic phrasing which always delights his audience. Then followed an inspiring address on "Architects of Freedom" by Dr. Adam S. Bennion, Vice President of the Utah Power and Light Company.

Friday morning began bright and early, 6:30, in fact, with the Convention Caravan wending its way through the canyon to the beautifully situated picnic ground, complete with its outdoor cooking facilities, tables, shelters, shading trees, and running brook. During a delicious breakfast, which always tastes best in a setting such as this, the early risers were regaled with cowboy songs and western ballads.

Returning to the Convention session, the morning seminar lecture on the "Sociology of the Urban Community" was presented by Dr. Louis Wirth, with President Douglas William Orr as moderator. Then followed brief summaries of the seminars—on Esthetics by B. Kenneth Johnstone, on Urban Planning by Louis Justement, on Dwellings by L. Morgan Yost, and on Retail Business Buildings by Kenneth C. Welch.

A student guest then gave his impression of the Convention. Institute business followed, including the Report of the Committee on Resolutions.

The Convention then adjourned to tour the City, the great Utah Copper Mines, and the Great Salt Lake itself. Few, however, ventured out and into the salt-saturated water.

The post-Convention trips to the National Parks started Saturday morning, but that is another story.

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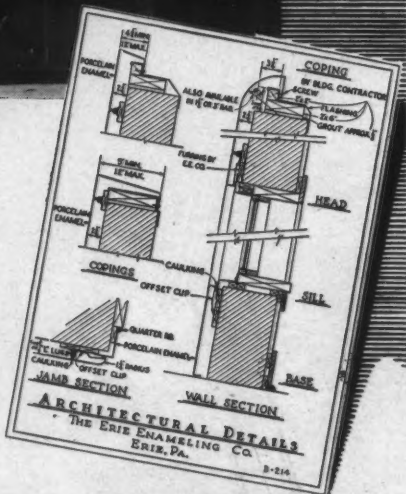
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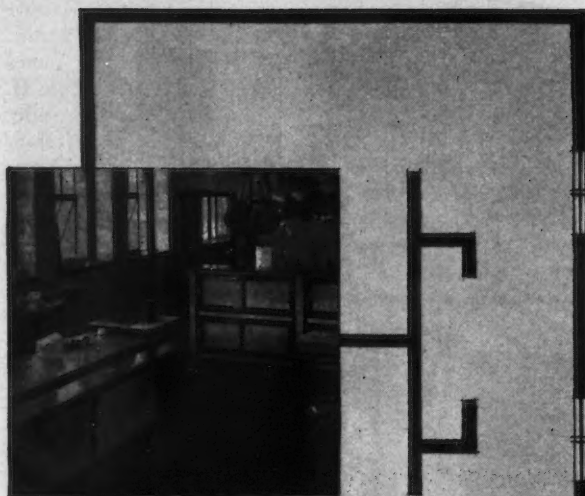
MAIN ENTRANCE: . . . and for exterior steps, we suggest Bronzalun* thresholds and treads.

Our Advisory Engineering Service extends to all key cities, offering you a convenient, authoritative source for non-slip flooring information. Meantime, check our non-slip products in Sweet's File, 13a-8.

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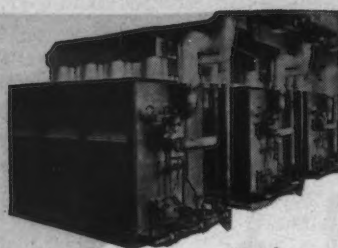
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These Bryant Winter Air Conditioning Units provide the design and operation features that you want for single or multiple installations. Made in conventional basement model with cast iron heat exchanger, and vertical types with either cast iron or *Hevigage* steel heat exchangers. 17 different sizes; inputs 45,000 to 250,000 Btu per hour.

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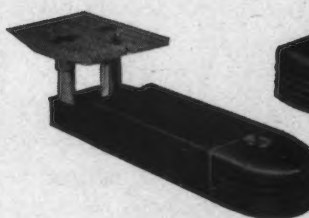
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CONVERSION BURNERS

Old-fashioned furnaces become modern, fully-automatic gas heating plants with Bryant Conversion Burners. Bryant provides three types in two basic models: round burner and baffles for conventional round furnaces, rectangular burner for rectangular boilers and furnaces, and a single-port, spread-flame budget model for special applications. Ten sizes.

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Model 97



Model 94-R

SPACE HEATERS

Heat a single room . . . cabin, office, study, laundry . . . or a complete home with these Bryant Space Heaters. They provide welcome warmth by both radiation and circulation, require less floor space than the ordinary radiator, eliminate the hazards of old-style, open-flame heaters. Seven different sizes, inputs 15,000 to 60,000 Btu per hour, manual or automatic control.



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Bryant Floor Furnaces are engineered for ease of installation and operation. They are designed to fit between standard floor joists, provide floor level access to ignition and temperature control. They feature Bryant electric *Dial-Lite* ignition, are made in three sizes for automatic or manual control with inputs from 25,000 to 45,000 Btu per hour.



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All Bryant products are approved by American Gas Association for use with natural, manufactured, liquefied petroleum or mixed gases.

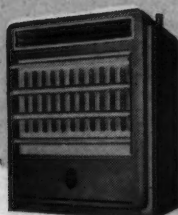
IT'S BRYANT... ALL ALONG THE LINE!



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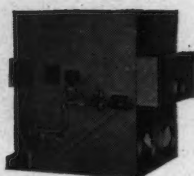
Model
85



Model
US-322

UNIT HEATERS

Bryant Unit Heaters complement the smart interiors of modern stores and offices, adapt themselves readily to factories and warehouses and in other commercial or industrial establishments. Model 85, in five sizes from 65,000 to 255,000 Btu per hour, has tubular steel heating sections; Model US-322, six sizes with inputs from 60,000 to 210,000 Btu per hour, features the *Hevigage* steel heat exchanger.



Model
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Model
GS-57

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These Bryant Gravity Warm-air Furnaces are built for budget homes. They include a standard basement model for replacement of old, worn-out furnaces in existing housing or for new, low-cost housing; plus the splendid new Bryant Suspended Gravity Furnace with smooth-running propeller-type fan for use as a central core in small homes. Model GS-57 is made in four sizes, inputs from 70,000 to 140,000 Btu; Model SGF-362 in 55,000 and 70,000 Btu inputs.



Model 103
Red Seal



Model 110
Black Seal



Model 115
Blue Seal

WATER HEATERS

Here's the automatic storage water heater line that is taking the country by storm . . . the Bryant *Red Seal*, a standard economy model; the Bryant *Black Seal*, a superior water heater with five exclusive features; and the *Blue Seal*, with the Bryant *Protect-O-Rod*—the water heater that is *built to grow old*, backed by a 10-year protection plan. Bryant Water Heaters offer special burners for each type of gas, are made in 20, 30, 40, 50-gallon sizes.

The most complete line of gas heating equipment in the nation...at your service!

Unit for unit, the complete Bryant line of automatic gas heating equipment covers every phase of radiation, convection and conduction heating. It is backed by powerful national advertising, by a great array of tested sales aids; supported by extensive sales and service training activity and a nationwide distribution and parts service organization set up for easy access by dealer and customer. And it's yours to tie onto . . . for bigger sales, more trouble-free installations and a host of satisfied customers. Let the Bryant distributor in your territory tell you how . . . now!



LETTERS FROM RECORD READERS

School Classroom Height

With the permission of H. L. Wright, of Kistner, Curtis and Wright, Los Angeles, the RECORD quotes from a letter of his which bears on a general problem: the occasional conflict between functional scale and psychological scale.

In publishing the new elementary school at Barstow, California, designed by this firm, the RECORD (March, 1948, page 137) queried whether the unusual height of the

rooms might "result in scale somewhat imposing to small children." Mr. Wright's letter follows.

EDITOR:

I realize that the high ceilings in school classrooms are not in scale with the pupils and thoroughly believe that a building with lower ceilings presents a better appearance in reference to scale. My only defense for advocating high ceilings is the increase in daylight in-

tensity in classrooms and we feel that the scale should be sacrificed for the best lighting obtainable.

The only time I get into trouble regarding scale is with the architects. The school people with whom I come into contact, without exception, feel the same way I do. Some very competent educators who have studied the problem in this state believe that the height of classrooms is secondary insofar as its effect on the pupils is concerned. The important thing is to scale the furniture and equipment to the student.

Of course, heating and ventilating in Southern California do not present any particular problem because of our mild climate. I realize that the cubage of the building is a factor to be considered where heating and ventilating are of primary consideration.

— H. L. WRIGHT
Los Angeles

"Architects Anonymous"

EDITOR:

I wish to state that your lead-off article in the July issue of the ARCHITECTURAL RECORD, "Architects Anonymous," certainly hit the nail on the head. As you already know, I happen to be one chap who broke through from being just another designer in another office via competition.

I feel that the architectural magazines are doing the profession a great good by trying to instigate more and more competitions. It is the only hope for the younger man to be able to gain recognition and perhaps also to obtain the commission for a job. It is obvious in this profession that until you are well along the row (that is to say into your 40's) it is almost impossible for a younger architect or firm of architects to obtain large work. Once again the competition is the only means.

I think it would be of interest to the magazine to dig into the status of government, state and city work pre First World War. As I recall, all government, state and city work was first to be open competition and that during and immediately after the First World War pressure was brought to bear and public competitions were left to the discretion of the city, state and federal governments. I remember this because of something my father said to me right after he came back from the First World War: "Now youth is going to have a tough time, as their means of getting recognition has been wiped out." I pass this along. I think it might be of interest to the magazine as a follow-up to your "Architects Anonymous."

— CALEB HORNPOSTEL
New York City



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HEATING
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TO HEAT
THE
CEILING?**

SPECIFY GRID
THAT GIVES YOU WARM AIR
IN GREATER VOLUME AT THE
WORKING LEVEL—

GRID Unit Heaters are designed for low outlet temperatures and more air delivery to the floor line—not the ceiling.

This means a saving in the fuel bill, while assuring warm comfortable air to the working areas. Only by eliminating stratification of warm air at ceiling level can you get the ultimate from your heating dollar.

Don't be confused by unit heaters offering great BTU delivery and high outlet temperatures; you may be heating your ceiling. BTU in a unit heater does not mean everything . . . it's the CFM and low outlet temperature that really count. If you want to save on your fuel bill, install GRID this heating season.

GRID heating sections are one piece construction high test cast iron—the metal for permanency . . . no electrolysis because there are no dissimilar metals used in GRID construction. Hence, no maintenance expense—but years of trouble-free heating service.

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A UTILITY SHOWER

For The Basement



NOW WITH CEMENT RECEPTOR

In 2 sizes: 32 x 32 x 76

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White baked enamel aluminum walls. Concrete receptor or steel receptor. Chrome plated drain. Shower head. Dual shower valves. Available with glass door—or curtain rod and curtain.

A REAL profit-getter in shower cabinets! Tiletone's Model 45 is designed for those who want a truly low cost cabinet, combining utility with lasting durability. Model 45 comes in

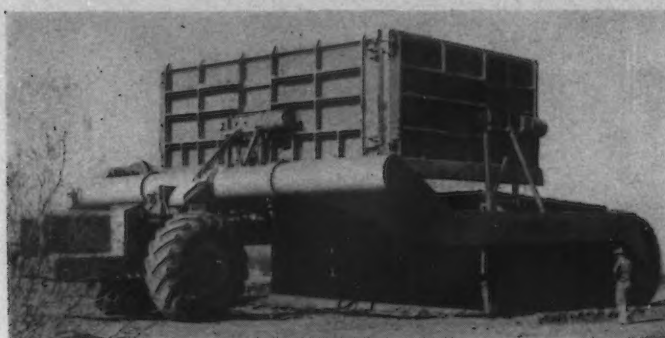
two sizes to fit any space requirement. Ideal for basement installation—summer cottages—clubs—farms. Wherever economy plus durability is desired, Tiletone's Model 45 meets the need.

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At Muroc Air Force Base
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Above: left, the Tournalayer pulls away after positioning monolithic unit on the site; right, fixtures are installed on inner form before pouring operations begin

A luxury kitchen...
Designed for hard usage
in Rental Properties!



MURPHY-CABRANETTE KITCHENS

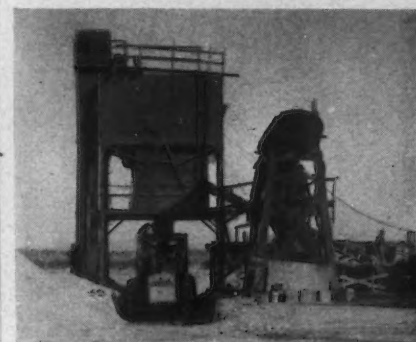
PORCELAIN ON STEEL

You'll recognize tenant-appeal in the front of gleaming white porcelain... in the convenience of modern refrigeration with push-button door and stainless steel frozen food compartment, with modern gas or electric range, with roomy upper storage cabinets and with the large deep bowl sink in the one-piece top of porcelain... all skillfully streamlined into one compact unit.

You'll value the saving in valuable floor space that is practical with any Murphy-Cabranette Kitchen.

You'll be long satisfied with the trouble-free operation and almost negligible maintenance costs.

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A 25-cu.-yd. Nobel batch bin, with 3-yd. weigh hopper is used at Muroc for batching of pumice aggregate. Bin is fed by bucket-type conveyor running from nearby stockpile. Tournamixer drives directly under the hopper to receive its load

At the Muroc Air Force Base, Lake Muroc, Calif., a hundred double-unit dwellings for Air Force personnel and their families are being erected by the Tournalayer method developed by R. G. LeTourneau, Inc. Contractor for the project is the Wm. Radkovich Co. of Los Angeles.

Two sizes of house forms are used for each of the double units. One form monolithically casts a basic unit of a house 32 ft. 8 in. by 24 ft. in size, with a longitudinal center partition, while a smaller form casts in one piece a structure measuring 18 ft. 8 in. by 24 ft. Each unit is picked up and carried by a Tournalayer to the housing area, where it is set 7 ft. apart from its component. The two sections are then joined with a conventionally constructed corridor, 7 ft. long and 16 ft. wide. This portion is further tied by pneumatically applied mortar or gunite.

(Continued on page 182)

How TIME- Abo

"Sky-Glo" step in be prime questions are a few. free 28-p Use the co "Sky-Glo" advertised lighting s oped and and there like "Sky- and conti has been Benjamin ment Lab

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AS ADVERTISED IN TIME MAGAZINE

How to Answer TIME-Readers' Questions About "Sky-Glo"

"Sky-Glo" is such a great forward step in lighting that you'd better be primed with answers to the questions you'll be asked. Here are a few. The rest are in the new free 28-page "Sky-Glo" Bulletin. Use the coupon for your copy.

"Sky-Glo" is the only nationally advertised luminous louvered lighting system. Benjamin developed and introduced "Sky-Glo" and there will be no other "exactly like 'Sky-Glo'." This distinctive and continuous "ceiling of light" has been thoroughly tested by the Benjamin Testing and Development Laboratory.

Made to Order for the Store Remodeling Boom!

"Sky-Glo" fits directly into the national trend toward interior modernization. No other single improvement can do as much for a store, office, schoolroom, bank, lobby or public building. Yet "Sky-Glo" actually costs less than many commonplace false ceilings.

Luminous Louvers

Unlike wood or metal slat louvers, "Sky-Glo" is TRANSLUCENT; has light transmission factor of 71 per cent. It is made of non-flammable thermoplastic Vinylite, product of Bakelite Corp.

Durable

"Sky-Glo" luminous louver panels will not discolor or become brittle with age. They will not warp or distort under prevailing room temperatures.

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The mat finish of "Sky-Glo" does not easily collect dirt, is kept sightly by occasional maintenance.

... The rest of the story about the first luminous louvered ceiling is in the new free "Sky-Glo" "SG" Bulletin, yours for the asking.

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Gentlemen: Without cost or obligation please send me Bulletin "SG" with complete data on Benjamin "Sky-Glo."

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a NEW experience in Seeing..
more light, but without glare!

Use "Sky-Glo" to modernize your store or office! Conceal Outmoded Ceilings, Eliminate Extensive Alterations!



OFFICE Workers respond to "Sky-Glo's" eye-ease. Error and fatigue decrease, visitors are favorably impressed.



STORE "Sky-Glo" modernizes any interior, yet calls attention to the merchandise rather than to itself.



SCHOOL Better health, better energy application, better learning, easier teaching, come with "Sky-Glo".

From the translucent "Sky-Glo" ceiling comes 75 to 125 footcandles of even, restful, shadow-free light, like the open sky—with no feeling of harsh brilliance! It's a new KIND of light from a new KIND of ceiling—a glorious all-over glow which quickly and economically modernizes any interior. This ceiling of light hides sprinklers, ducts and overhead unsightliness. It eliminates need for a "forest of fixtures" usually required to attain high lighting levels. Yet "Sky-Glo" costs less than many conventional false ceiling installations.

Mail Coupon for "Sky-Glo" Bulletin

Standard louvered "Sky-Glo" sections compose into handsome geometric patterns. They are hung readily, they fit any room shape and adapt on the job to pilasters and vertical piping. Rigid "Sky-Glo" is fire-safe, will not distort or discolor under normal room conditions. Send coupon for informative folder.

*Unlike wood or metal slat louvers, "Sky-Glo" both transmits and reflects light. Made of Vinylite, product of Bakelite Corp.

BENJAMIN
"Sky-Glo"
LUMINOUS LOUVERED LIGHTING SYSTEM

Product of Benjamin Electric Mfg. Co., Des Plaines, Illinois, The Nation's Largest Manufacturer of Lighting Equipment—Established 1901—Makers of a complete line of lighting equipment for Industrial, Commercial, Play-Area & Utilitarian Requirements. Distributed Exclusively Through Electrical Wholesalers.

Benjamin Electric Mfg. Co., Dept. Q1, Des Plaines, Ill.
Gentlemen: Without cost or obligation please send "Sky-Glo" Bulletin to:
(Write name, firm and address in margin below)



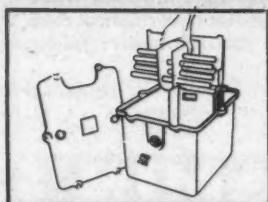
Left: two sizes of house forms are used for each double unit at Muroc, the two delivered to the site by Tournalayer and set 7 ft. apart; a conventionally constructed corridor joins them. Above: an overhanging eave "dresses up" a duplex unit



Q. What can you find in the New Wade Catalog that you can't find anywhere else?

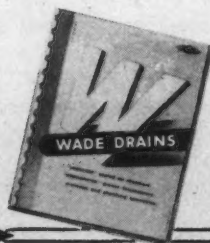


A. PLENTY! for example:
THE **HYDRA FILTER** FIRST and ONLY
double-acting GREASE INTERCEPTOR



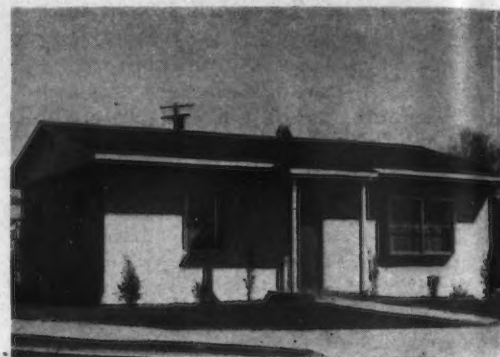
TRAPS GREASE 2 WAYS — by new hydraulic filtering plus conventional gravity separation
EASIEST TO CLEAN — has lightweight aluminum cover and quickly removable filter unit
TRIPLE VENTED — for installation in any situation — cannot siphon — meets all codes

Complete selection tables for a full range of HydraFilter sizes, plus dimensions, weights and prices, are just a few of the features found only in the New Wade Catalog. It's full of technical and practical information to help solve all sorts of drainage problems. If you have not yet received a copy, drop us a line today, telling us how many you would like.



WADE
MANUFACTURING COMPANY

ELGIN, Illinois
Makers of Fine Drains and Plumbing Specialties Since 1865



Tournalayer-built home in Los Angeles

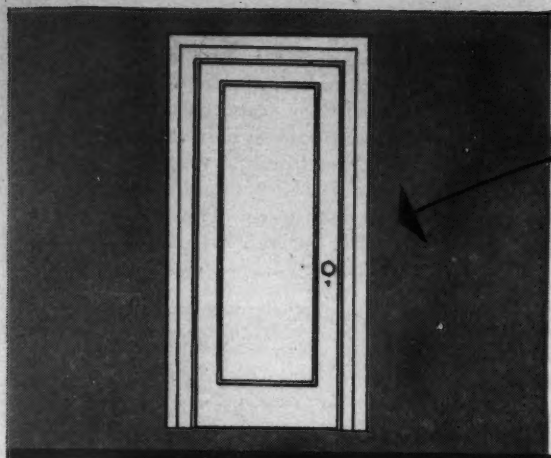
Each unit has two bedrooms, a large living room, kitchen, dining room, bathroom and service porch. Regimentation of design is avoided by employing separate patterns in rigging forms, varying facing, and multi-color combinations in painting. The houses are air conditioned, and the pumice aggregate used in their structure provides insulation.

All houses are poured and formed at a central operating point on the Muroc project, and require only 16 hours before positioning on final sites. Pours on the large units are completed in an hour and a half, and on the smaller units in 45 minutes.

Steel frame windows are inserted upon the wall of the inner house form. These frames are 1 in. in thickness and are mounted on a tapered steel buck which is necessary to fill out the full 5 in. of wall. The bucks are removed after the house is cast, leaving the 1-in. frame imbedded in the concrete.

Part of a housing development at Corpus Christi, Texas, built by Tournalayer method





The single panel Ponderosa Pine door shown here is only one of many types. Ponderosa Pine doors are correctly proportioned—precision manufactured for easy installation and satisfactory service. These single panel doors are also furnished with hardwood panels. For illustrations of Ponderosa Pine doors, see our booklet "Today's Idea House."

SCOPE FOR *You*—SAVINGS FOR THE OWNER!

THERE'S an extra benefit for you—and for the owner—when you specify stock design doors of Ponderosa Pine. For you, there's greater scope in planning, because Ponderosa Pine doors are made in such a wide variety of types—including panel doors, mirror doors, Dutch doors, and French doors. Second, the owner reaps the economy of the modern mass-production methods by which these doors are produced.

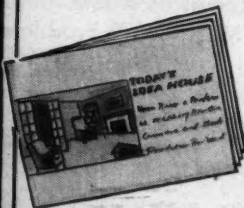
One of the most workable of woods, Ponderosa Pine provides enduring value when used for doors and windows. It is smooth-grained, and the grain will not raise. It sands to a satiny texture and is easy to paint or stain. And remember, both Ponderosa Pine doors and windows are obtainable toxic preservative treated.

A booklet worth having is "Today's Idea House"—full of photographs showing actual installations of Ponderosa Pine doors and windows. Send today for your free copy.



For Friendly Living..

Ponderosa Pine
WOODWORK



Ponderosa Pine Woodwork
Dept. RAR-8, 38 South Dearborn Street
Chicago 3, Illinois

Please send me a copy of "Today's Idea House." (Please print)

Name

Address

City Zone State

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(Continued from page 151)

ment house service, the Barton is described as ideal for laundries, hotels, private clubs, school dormitories and hospitals. Barton Mfg. Co., Kalamazoo, Mich.

RAILING FITTING

An aluminum alloy fitting for pipe railings has been developed which is said to simplify the construction and consequently reduce costs of pipe railings of all descriptions by eliminating welding

of joints, cutting and threading of pipe and tapping on both pipe and fittings.

The *Nu-Rail Slip-On Fitting* fits over the pipe and engages it by means of hollow point screws in place of conventional threaded pipe and fittings.

Simplicity of design, featuring an "eccentric cross," permits the pipes to cross each other without interference; by means of drive caps the "cross" may also be used as an elbow or a tee.

Experiments were said to reveal

promising uses in scaffolding of all descriptions and in the construction of railings and pipe racks of all types.

Laboratory tests, using a 6 in. lever arm, were said to indicate the ability of the fitting to carry weight up to 2800 lb. per fitting without slippage of the hollow point screws. The Hollaender Mfg. Co., 3841 Spring Grove Ave., Cincinnati 23, Ohio.



Above and below: slip-on fitting for pipe railings eliminates welding and threading

at
home
in any
room

plan on
Marlite
walls



For the bright, efficient kitchen that will complete your plans for that modern house . . . for the practical beauty you need for that office building still on the drawing board . . . plan on Marlite plastic-finished wall and ceiling panels.

For any room, in any building—wherever practical beauty is required—Marlite colors and patterns provide the sparkling, colorful beauty and economical practicality that appeals to every client and simplifies your specification problems. See the new Marsh catalog in Sweet's File, Architectural, for complete details on Marlite wall-size panels, Marsh Mouldings, Marsh Bathroom Accessories and other Marsh products that help you do a better job. Marsh Wall Products, Inc., 805 Main Street, Dover, Ohio.



Marlite
PLASTIC-FINISHED
WALL PANELS

*for Creating
Beautiful Interiors*

Marlite, Marsh Mouldings, Marlite Polish, Marsh Bathroom Accessories, Marsh C-100 Caulking, Marsh C-200 and C-300 Adhesive, Marsh C-400 Household Adhesive



PLASTIC SURFACED PLYWOOD

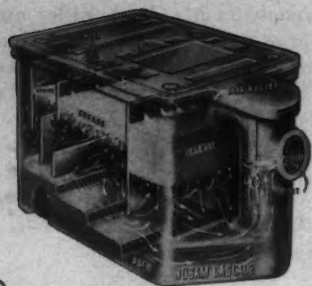
Paper-plastic surfacing of plywood is said to result in three major improvements: (1) increased tensile and flexural strengths; (2) a lower rate of moisture absorption; and (3) an excellent surface for subsequent painting and finishing. In addition it is claimed to minimize checking difficulties, resist temperature extremes, weathering, abrasion and to be non-splintering.

Included in the variety of applications are table tops, counters and as workbenches in stores, factories and plant cafeterias.

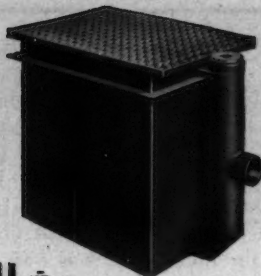
As a concrete form material, paper-plastic surfaced plywood is described as being extremely economical and serviceable. It can be re-used many times and will strip easier, clean faster and demand little oil or oiling labor, according to the manufacturer. Plywood forms have already been used on large housing projects where they are said to produce very smooth surfaced concrete slabs.

This new structural material, known as *Kimprex*, consists of special paper stock impregnated with *Bakelite* resins which is laid with the glue spread ply-

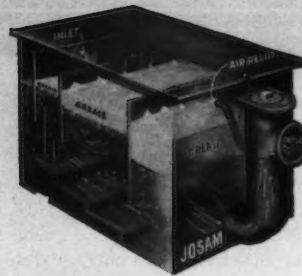
(Continued on page 186)



Series "J" Grease Interceptor. All cast iron for Domestic and Commercial Service, capacity up to 40 GPM; for installation on floor or recessed in floor.



Series "JP" and "JR" Grease Interceptor. All steel for Commercial and Industrial Service, capacity up to 150 GPM; for installation recessed in floor.



Series "JN" Grease Interceptor. All steel for Commercial and Industrial Service, capacity up to 150 GPM; for installation on floor.

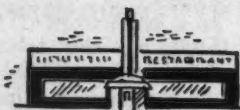
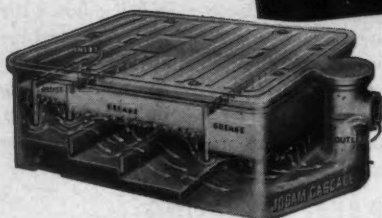
WHEN THE PROBLEM IS

GREASE

THE ANSWER IS



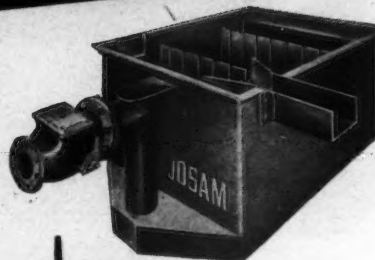
CASCADE GREASE INTERCEPTORS



Series "JL" Grease Interceptor. All cast iron for Dishwasher Service, capacities to 30 GPM; for installation on floor or recessed in floor.

Flow Control
Guarantees
MAXIMUM GREASE
INTERCEPTOR EFFICIENCY

A controlled rate of flow to the interceptor is necessary to assure 90% or more grease interceptor efficiency. For this reason, a Josam Flow Control which governs the rate of flow is furnished with every Josam Interceptor.



Series "PH" Grease Interceptor. All steel with skimming valve and skimming trough for Packing House and Industrial Plant Service, capacity up to 1000 GPM.

The plumbing drainage system of a building is only as good as its pipe lines. And when the pipe lines fail to function properly, every activity in the building can be interrupted. A common cause of pipe line trouble is **GREASE** . . . because **GREASE** in waste water builds up, layer upon layer, on the inside of the drain lines until it eventually clogs the pipes.

In homes, restaurants, hospitals, hotels and schools where **GREASE** is a by-product of cooking; in industrial plants, rendering plants and packing houses where **GREASE** and fats are a costly hazard . . . Josam **GREASE INTERCEPTORS** eliminate this hazard completely. Josam makes a type and size for every purpose, complying with local code regulations everywhere. For complete protection against **GREASE** clogged waste lines, rely on **JOSAM GREASE INTERCEPTORS**. Their cost is so little compared to the permanent protection they provide.



Josam Manufacturing Co.

Main Sales Offices, Josam Bldg., Cleveland 13, Ohio

Manufacturing Division, Michigan City, Ind.

Representatives in all Principal Cities

JOSAM-PACIFIC CO., San Francisco, California

West Coast Distributors

EMPIRE BRASS COMPANY, LTD., London, Ontario

Canadian Distributors

See the Josam Inserts in Sweets'

Josam Mfg. Co., 302 Josam Bldg., Cleveland 13, Ohio

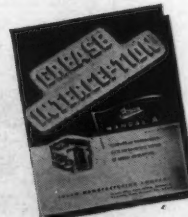
Please send me Josam Manual "A" on Grease Interception

Name.....

Firm.....

Address.....

City.....State.....



wood veneer assembly in a conventional plywood hot press, curing both the plastic-paper and internal glue bonds. Kimberly-Clark Corp., Neenah, Wis.

FIVE-ROOM COTTAGE

A complete five-room cottage designed for the Armstrong Cork Co. demonstrates that a very attractive home can be built on a small budget and shows the versatility of the use of the company's interior coverings.

The keynote of the cottage, designed by Hazel Dell Brown of Armstrong's Bureau of Interior Decoration in collaboration with William E. Huber, A.I.A., is the reported utilization of every inch of space. Careful planning permits the house, which is only 23 by 25 ft. overall, to have such luxury features as a fireplace, nursery and a dressing room.

The decorative scheme of the house includes use of linoleum floors through-

out. Linoleum has many other uses in the house as well, such as providing a smooth top for the lavatory and dressing table in the bathroom and the work surfaces and table in the kitchen.

The ceilings are all of *Temlock*, a decorative insulation board, and the walls of the bathroom and kitchen are covered with *Linowall*, a smooth wall covering.



Budget house has luxury features such as a fireplace, nursery and dressing room

HOW TO SOLVE— Employee Washing Problems



1. USE BRADLEY WASHFOUNTAINS

One Bradley group Washfountain serves 8 to 10 persons simultaneously — comfortably and quickly with maximum sanitation and health protection. Foot-control keeps hands free from contagious infections while the self-flushing bowl prevents contaminating dirt collections. One Bradley eliminates from 16 to 20 faucets and reduces piping connections by 80%.

2. USE BRADLEY DUOS for Office and Executive Personnel



One Bradley DUO-Washfountain takes the place of two conventional basins with the one DUO sprayhead replacing four ordinary faucets. In addition, the self-flushing bowl and automatic foot-control reduce maintenance and afford maximum sanitation. Further details can be secured by writing for DUO Bulletin 464-D.

BRADLEY
Washfountains

BRADLEY WASHFOUNTAIN CO.

2227 W. MICHIGAN STREET, MILWAUKEE 1, WISCONSIN

To supplement the model design, preliminary sketch plans of the cottage have been prepared for distribution along with a booklet in full color. (10¢) The sketch plans are not complete blueprints, but they do explain in some detail the ideas incorporated in the design and give additional suggestions in decorating the house. Armstrong Cork Co., Lancaster, Pa.

CARPET HANDLING EQUIPMENT

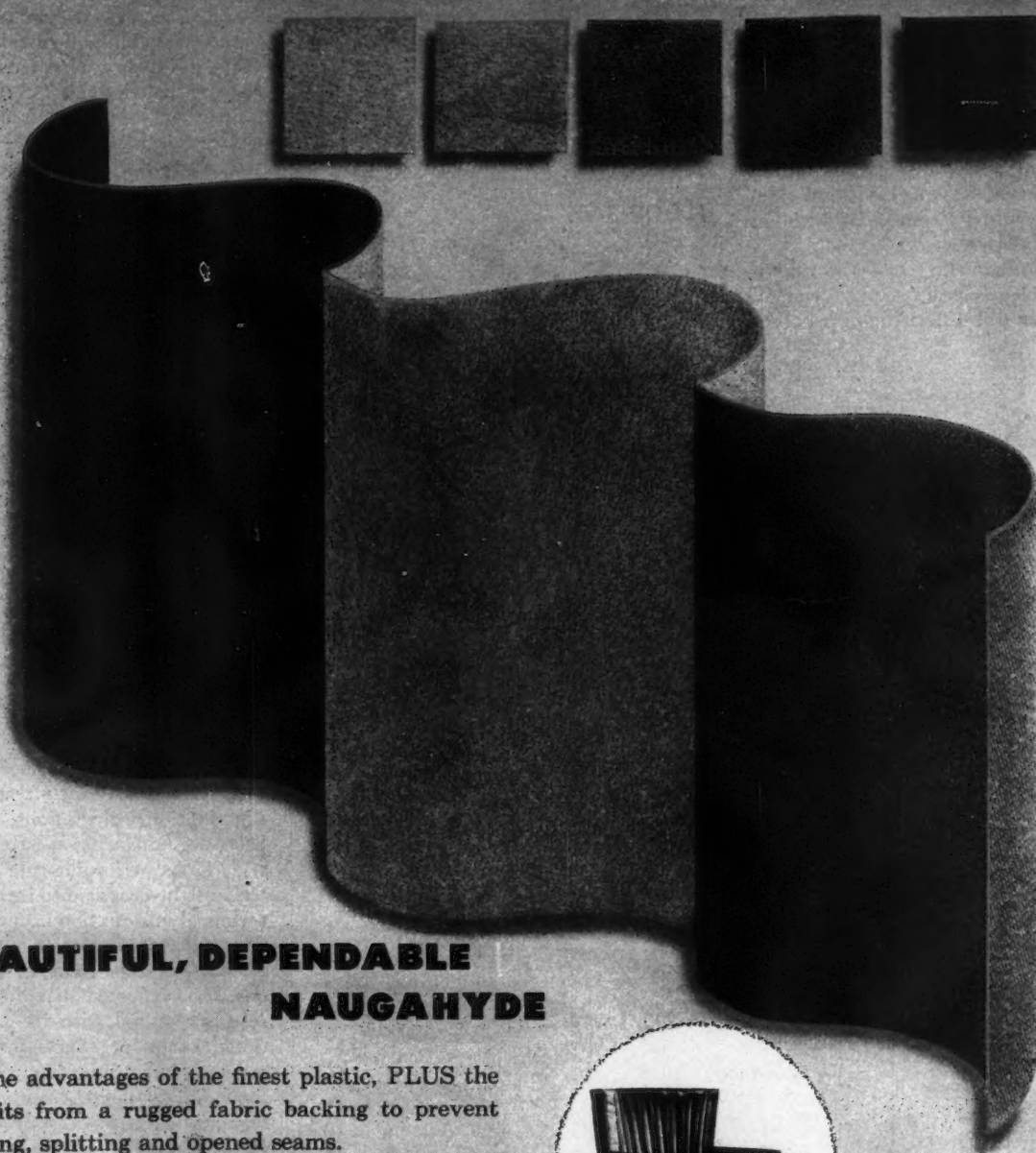
The former difficult, unwieldy tasks of lifting, storing and cutting broadloom carpet have been minimized with the inception of completely mechanized handling equipment for department stores called *The Cradle System*.

Once a roll of broadloom is in the receiving room, whether boxed or wrapped in burlap, it is conveyed to the cutting floor by a traveling crane. There mechanical means are provided to roll the carpet out of the box onto a cradle which rests on a cutting table. If wrapped in burlap the broadloom is held by slings and deposited directly onto the cradle.

The whole cutting table is then lifted and moved to an open storage compartment where the cradle, being completely independent of the table, travels on ball-bearing wheels to steel channels of the compartments.

When a roll of broadloom is taken out of storage, the crane moves a cutting table to the level of a compartment and the loaded cradle slides easily onto the cutting table. The crane then deposits the table on the floor where the cutter wants it.

The Cradle System eliminates costly
(Continued on page 188)

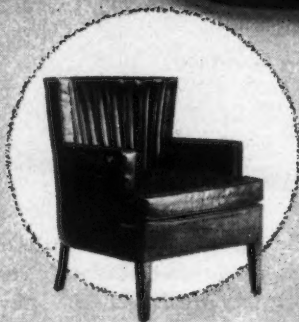


BEAUTIFUL, DEPENDABLE NAUGAHYDE

All the advantages of the finest plastic, PLUS the benefits from a rugged fabric backing to prevent bagging, splitting and opened seams.

61 colors and finishes to fit any color scheme desired; all scuffproof, fadeproof, truly wear-resistant.

Manufacturers' note: We furnish booklet tags and ribbons to identify U. S. Naugahyde on your products—use them for full tie-in benefits from our national advertising.



U.S. Naugahyde

THE FINEST IN PLASTIC UPHOLSTERY

Made only by



COATED FABRICS DIVISION—MISHAWAKA, INDIANA

U.S. RUBBER
SERVING THROUGH SCIENCE

UNITED STATES
RUBBER COMPANY

Distributors in principal cities

aisles and creates profitable storage capacity from floor to ceiling.

Installations are of various sizes and types to serve the needs of the small retailer as well as the large.

The crane has four point suspension and its movements up, down and sideways are minutely controlled with an electrical push button system.

Compartments and cradles are numbered which simplifies stock control records. Any roll of broadloom whether

18, 20 or 30 in. diameter or from 9 to 18 ft. in length is lifted, stored or moved with equal ease for cutting or matching service. Textile Handling Equipment Co., 817 South Western Ave., Los Angeles, Calif.

FLOOR SAFE

Steel floor safes have been designed in three models for home, business and industrial uses.

The *Deluxe Floor Safe* is described as

affording maximum protection against the double threat of fire and theft. The body of the safe is cylindrical in shape, made of 1 in. non-rustable steel. Removable heads are hardened, drill-proof, chrome nickel steel. The floor safe employs the use of two separate relocking devices, each working independently of the other; the safe automatically locks from the inside when an attempt is made to force it open. H & W Specialties Co., 532 Broadway, Toledo 4, Ohio.



Floor safe uses two relocking devices

STYLES CHANGE- but not Quality IN KEWAUNEE LABORATORY FURNITURE



Kewaunee 1948 Design Chemistry Desk with latest design Fume Hood

Kewaunee 1908 Design Chemical Desk with Fume Hood

There's no mistaking the old and the new by their appearance. But make no mistake about quality, because Kewaunee quality is the common denominator of both. Fine quality that never changes.

Kewaunee Laboratory Furniture is designed to be completely functional . . . to give maximum efficiency and work-saving convenience. Ruggedly built in our own plants, to stand up under years of hard use. All Kewaunee Metal Furniture is now our new heavier construction. Bonderized for protection against chipping, rusting and cor-

rosion. KemROCK working surfaces defiantly resist acids, alkalis, solvents and physical shock. Yet Kewaunee Laboratory Furniture is priced to fit tight budgets.

So why not check into all of Kewaunee's advantages? Write today for your free copy of Kewaunee's latest catalog of Laboratory Furniture.

Kewaunee Mfg. Co.
C. G. Campbell, President
5046 S. Center St. Adrian, Michigan
Representatives in Principal Cities

LIGHTING CALCULATOR

A pocket-size *Calcu-light-or* for rapid illumination calculations has recently been developed by Westinghouse Electric Corp. Of slide-rule design, the *Calcu-light-or* is said to include all of the technical information necessary to make illumination calculations by either the "lumen" or the "point-by-point" methods. It is reported that no regular slide rule is required with its use, nor additional tables or charts for the lumen-method. A distribution curve is required for point-by-point calculations. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

BACTERICIDAL LAMP

A new instant start bactericidal lamp is said to emit more than twice as much ultra-violet radiation as any lamp heretofore available. The lamp is 36 in. long and may be operated at three different levels of intensity. Glass used for the lamp is described as having remarkable resistance to solarization, an opaquing effect that reduced the amount of ultra-violet radiation former lamps were able to emit. Westinghouse Electric Corp., Lamp Div., Bloomfield, N. J.

BASEBOARD HEATING UNIT

A baseboard heating unit has recently been designed with a heating capacity of 600 Btu-per hour per lineal foot with 170° F forced water circulation.

The heating core of *Ritling Baseboard* consists of continuous copper tubing

(Continued on page 190)



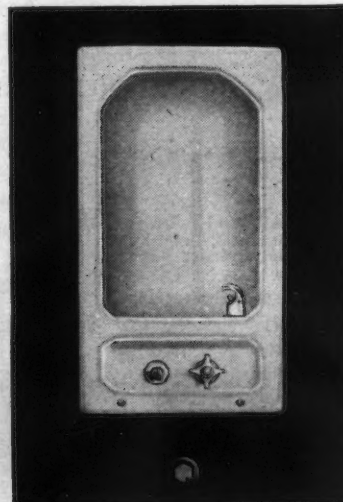
Daybrook K-5335-A Vitreous china, wall-hanging type. Size of bowl, 14 x 10".



Carisbrook K-5300-A Vitreous china pedestal type. Height, 30". Diameter of bowl, 13 1/4".



Glenbrook K-5325-A Vitreous china semi-recessed type. Height, 26 1/4", Width, 14 3/4". Recess depth, 4 1/2". Projection from wall, 6 3/4".



Vanbrook K-5331-A Vitreous china fully-recessed type. Height, 30". Width, 16 1/2". Inside depth, 10".

KOHLER DRINKING FOUNTAINS

assure sanitary protection
and convenience

KOHLER quality in drinking fountains is apparent in a number of important features. Each fountain delivers water in a mound that has the angle and volume recognized as most effective for sanitation and comfort. A self-closing control valve is adjustable for continuous flow, and an automatic volume regulator keeps the drinking mound at the correct height and shape under varying pressures. A metal guard prevents contact of lips with jet opening.

Kohler fountains protect against back siphonage or water contamination

—and all attempts at mischievous squirting are instantly defeated, for when water is checked at the jet opening it flows into the bowl below. The vitreous china surfaces are lustrous, durable and easy to keep clean. Kohler models include pedestal, recessed or semi-recessed, and wall-hanging types, some of which are shown. They all assure lasting serviceability and satisfaction. Write for information: Kohler Co., Dept. 24-B, Kohler, Wisconsin.

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

with aluminum fins. The entire unit is covered by a decorative, heavy gauge sheet steel, grided warm air outlet and deflector. This method of construction is said to assure complete rigidity throughout the assembly. The cover can be removed easily for cleaning the unit.

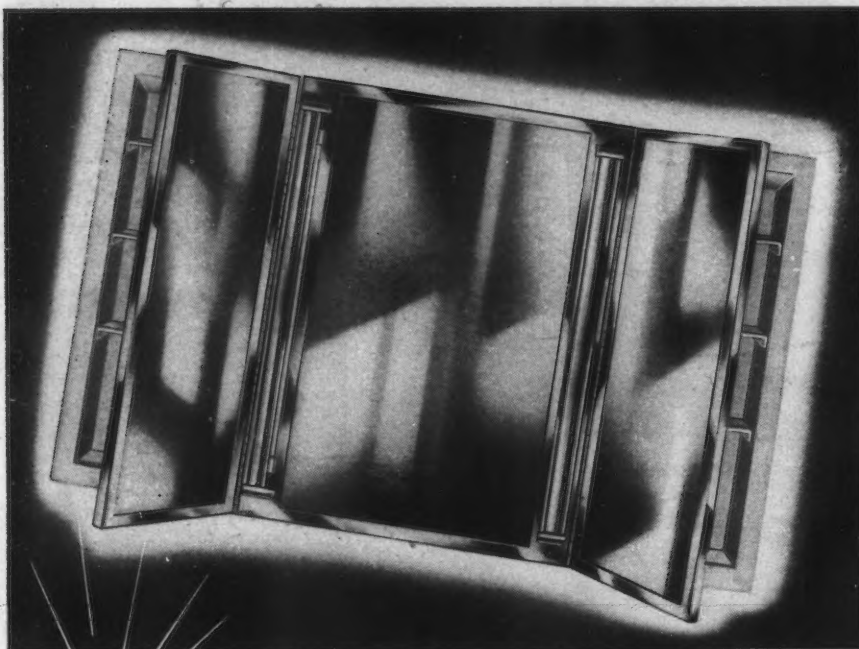
The baseboard units require no recessing and can be installed either before or after floors are laid by means of simple wall brackets and fittings.

The tube and fin assembly is furnished

in standard lengths of 2, 3, 5 and 9 ft. and can be joined by compression or sweat fittings.

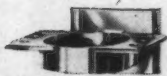
The front metal cover is supplied in 6 ft. lengths which can be readily cut off for exact fitting. A joining piece is provided to assure neat cover appearance.

End caps have been designed for either right or left extremities and also as a 90 degree corner piece. The Rittling Corp., 1292-98 Niagara St., Buffalo 13, N. Y.



Your own ideas polished up!

Above: No. 7004
Lumiline or Fluorescent
Light Cabinet with Side
Cabinets.



No. 215
Tumbler and
Tooth Brush Holder



No. 210
Soap Holder

IT WILL SURPRISE YOU how well your own ideas have been polished up—and how completely they have been incorporated in the designs of the whole Parker Line of bathroom cabinets and accessories. Years of experience have developed Parker's ability to see eye-to-eye with architects in style and utility... just as working with builders has influenced Parker's strict standards of materials and workmanship to meet extreme usage requirements. See the complete line in Sweet's, or send for the new Parker Catalog. The Charles Parker Company, Meriden, Connecticut.

PARKER

BATHROOM CABINETS
AND ACCESSORIES

(Continued from page 188)

PLEXIGLAS JALOUSIES

Decorative from inside as well as out, Plexiglas jalousies, resembling venetian blinds in appearance and function, have been designed to serve also as awnings and storm shutters. Installed on porches or in outside door and window frames, their louvers are opened, closed or adjusted to any angle for exact control of ventilation.

Their protective function is reported being proved at exposed seashore locations and hurricane areas. Because of the strength, flexibility and impact resistance of Plexiglas, these Plexiglas jalousies are claimed to be virtually un-



Plexiglas jalousies in a variety of colors serve as awnings and storm shutters

breakable, even standing the wind and flying debris engendered by tropical storms.

Since the basic material is made in a complete range of colors, the jalousies may be tied in with the color scheme of the house. Where privacy is one of their functions, they are often made up in white translucent Plexiglas. Where protection and control of ventilation are the only requisites, they can be made of clear material as transparent as optical glass, and said to transmit ultra-violet rays.

Other advantages claimed include their extremely light weight, freedom from warping, surface checking, discoloration and shrinkage. Tropical Awning Shutter Co., Miami, Fla.; Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

CEILING TILE

Ceiling tile is now being made of treated "hardboard" backed with insulation material and sprayed with paint at 200° F. The resulting satin finish is reported not to chip or craze and to be cleaned easily with a damp cloth.

An important advantage of Roxdale Ceiling Tile is its tongue-and-groove design which is said to assure accurate and rapid interlocking of the tiles. An overlapping tongue is claimed to prevent marring by inexperienced labor during installation.

(Continued on page 192)

Heat, Ventilate and Air-Condition with ... **MULTI-VENT**

The Only Air
Diffusion
System You
Can't Feel
Can't Hear
Can't See



Multi-Vent panels completely concealed by metal acoustical ceiling in The Columbus Mutual Life Insurance Co. Building, Columbus, Ohio. Air conditioned throughout with Multi-Vent. Consulting engineer, Samuel R. Lewis. Installed by Columbus Heating & Ventilating Co.



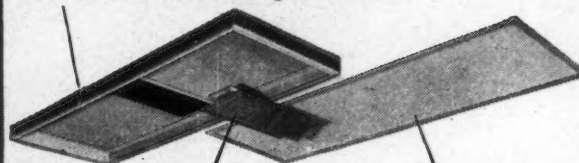
MULTI-VENT is the only air diffusion system you can't feel because *only* Multi-Vent's exclusively patented total displacement valve and large perforated distribution plate can provide the very low velocity and widespread air delivery necessary to completely eliminate drafts and the subtle, annoying sensations of draft, i. e. uneven room temperatures.

MULTI-VENT is an air diffusion system you can't hear, because Multi-Vent's recommended duct velocities and air volume requirements are so low that no audible friction noise is generated by the entering air. In addition, the sound absorption qualities of the perforated distribution plates actually reduces the noise level in any room.

MULTI-VENT is the only air diffusion system you can't see, because only Multi-Vent can be completely concealed above the square perforated pans in a *metal* acoustical ceiling. Multi-Vent panels can also be lined up with the creases in *fiber* acoustical ceilings for almost complete concealment. In all other types of installation, with exposed or concealed ducts, Multi-Vent panels are less conspicuous than diffusers of any other make.

MULTI-VENT, moreover, is by far the most *effective* and *efficient* air diffuser on the market today! Accurate tests show that Multi-Vent's low velocity air delivery makes possible the use of much

Control Plate Frame . . . is inserted in the overhead duct at the ceiling.



The Orificed Adjustable Air Valve . . . provides absolute displacement of static head . . . May be set for varying volume and velocities of air as desired by occupant. Individual panel adjustments can be made without disturbing over-all balance of system.

The Perforated Distribution Plate (or Metal Acoustical Pans) . . . of large area accomplishes wide, gentle, uniform spread and dilution of conditioned air and simultaneously provides panel heating and cooling.

SIMPLE TO INSTALL • QUICK TO BALANCE • EASY TO CLEAN

higher diffusion temperature differences without affecting the room occupants' comfort. This in turn greatly reduces the air volume usually required to take care of a given load . . . thereby not only making possible substantial reductions in the tonnage of the basic air conditioning equipment, but also adding greatly to the comfort factor. The result is truly superb comfort. *No drafts . . . no sound of rushing air . . . no protruding ventilating fixtures.* Write for Bulletin for complete information and specifications.

THE PYLE-NATIONAL COMPANY

MULTI-VENT DIVISION—1375 WEST 37th STREET, CHICAGO 9, ILLINOIS

Offices: New York • Philadelphia • Baltimore • Washington, D. C. • Cleveland • Cincinnati • Columbus, Ohio • Detroit • St. Louis
Kansas City • Omaha • Minneapolis • Denver • Salt Lake City • San Francisco • Greensboro, N. C. • Grand Rapids, Mich. • Winter Park, Fla.
Canadian Agent: F. W. Chambers and Co., Ltd., West Toronto 5



CONDUIT FITTINGS • PLUGS and RECEPTACLES • TURBO-GENERATORS • LOCOMOTIVE HEADLIGHTS • FLOODLIGHTS

(Continued from page 190)

The tile measures 12 by 12 in., is $\frac{5}{8}$ in. thick, and is available in four colors—light blue, peach, ivory and white. A border strip in the same colors, 4 by 24 in. is also provided. National Tileboard Corp., New York 16, N. Y.

ALUMINUM ROOFING

Corrugated aluminum sheet is now available for use as roofing and siding on industrial buildings of every type.

The weight of this new 0.032-in. cor-

rugated sheet is 56 lbs. per 100 sq. ft. and is produced with a corrugation depth of $\frac{7}{8}$ in. The deep corrugation is said to give the material a distinct advantage over smaller depth types because of the added rigidity and strength. Reynold Metals Co., 2500 So. 3rd St., Louisville, Ky.

STAINLESS STEEL SINKS

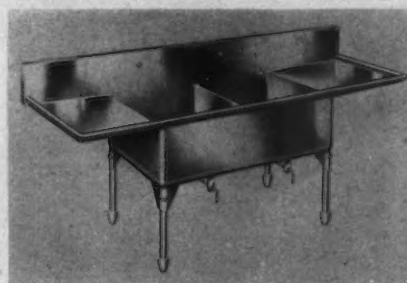
A complete line of round-corner, welded stainless steel sinks in 16 stand-

ard sizes has recently been introduced to meet the growing need for sanitary kitchen equipment.

These standard units, known as *Value Line* stainless steel sinks, are available with one, two or three compartments. Each sink may be obtained with two drainboards, drainboard on either right or left side, or without drainboard.

Features include the use of 18-8 stainless steel, fully rounded corners and coves, integral rolled edges and welded seamless surfaces.

A patented lever-handle waste outlet which opens or shuts the valve has been designed to eliminate the necessity of reaching through the contents of the sink to get at the drain. S. Blickman, Inc., Weehawken, N. J.



Stainless steel kitchen sinks available with one, two or three compartments

DRAINAGE PRODUCTS

A full line of ready to use stainless steel roof drainage products is now being produced by the Republic Steel Corp.

Items in the line include "K" gutter, plain round, corrugated round and corrugated square conductor pipe.

The drainage equipment is fabricated from satin-finish, 28-gage Enduro stainless steel. Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio.

DOOR OPERATORS

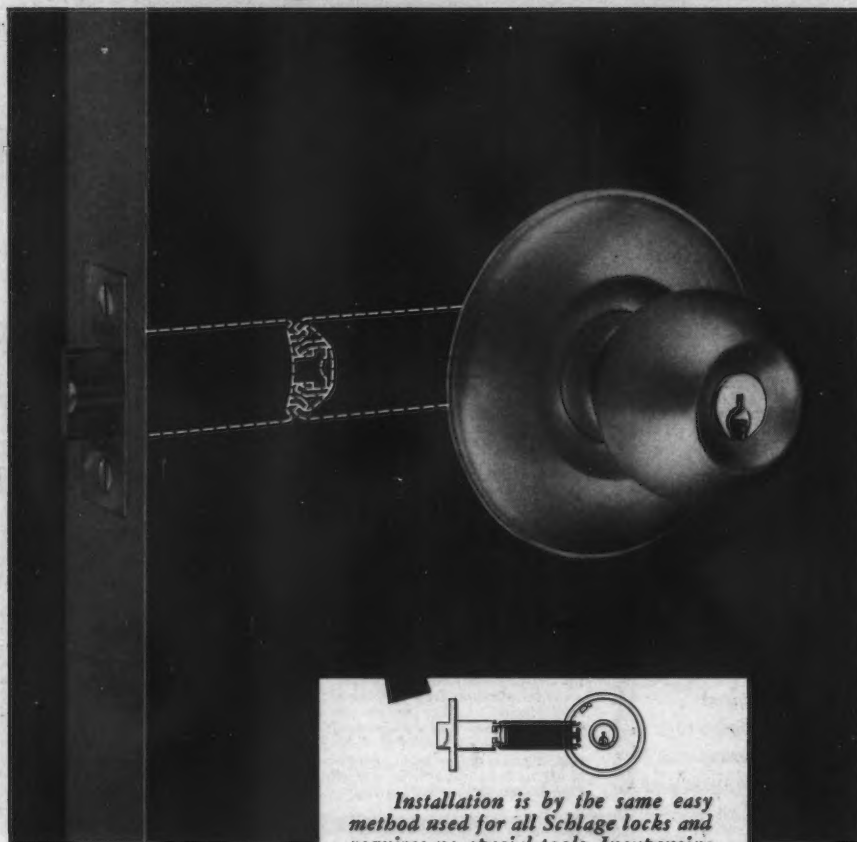
Y-M Electric Door Operators are again available for new and replacement installations on commercial and residential doors. These door operators can be used on overhead, sliding, folding, rolling or swinging doors. The instant stop safety feature is claimed to automatically stop doors on contact, thus preventing personal injury and property damage. Yoder-Morris, Inc., 5914 Merrill Ave., Cleveland 2, Ohio.

SCAFFOLD

A time-saving scaffold is made possible with a new type pump scaffold bracket. The entire platform, with men and materials, rides up or down on any 4-by-4. A simple brace holds it rigidly upright. The pump operates and safety locks automatically; it has no separate parts and requires no ropes, hooks or nails. The scaffold is held to the beams by means of pumps employing three

(Continued on page 194)

Schlage 5" Backset



Installation is by the same easy method used for all Schlage locks and requires no special tools. Inexpensive connecting link extends the standard Schlage lock to the 5" position.

A new dimension in Lock Placement

Schlage's exclusive 5" backset allows knobs and escutcheons to be installed away from the conventional "jammed-in" position near the edge of door. This new dimension results in greater convenience and balanced appearance. It also allows, for the first time, the use of large decorative escutcheons.

See Schlage
in Sweets Architectural
File



SCHLAGE
LOCK COMPANY
SAN FRANCISCO NEW YORK

ORIGINATORS OF THE CYLINDRICAL LOCK

This is the Wakefield

STAR



Des. Pat. 148,191

... with the **PLASKON Reflector** that Insures
UNIFORM LIGHT DISTRIBUTION

Modern artificial lighting strives for two objectives: first, an even distribution of light intensity, and second, the elimination of brightness contrasts. The Star utilizes a molded translucent Plaskon reflector of such density that the lighted luminaire is of approximately the same brightness as the illuminated ceiling. When Star units are used in continuous runs, spaced in accordance with Wakefield engineering specifications, uniform distribution of light is secured, with no deep shadows or sharp contrasts and without distracting glare from the light source.

MINIMUM REQUIREMENTS

The following table sets up the minimum requirements:

CONTINUOUS ROW INSTALLATIONS

	Room Index A	Large Rm. 48' x 96'	Room Index D	Med. Room 24' x 38'	Room Index G	Small Rm. 12' x 24'
Spacing	No. Rows	Fcs.	No. Rows	Fcs.	No. Rows	Fcs.
4' 0"	12 of 22*	79	6 of 10*	58	3 of 5*	43
4' 4"	11 of 22	72				
4' 9"	10 of 22	66	5 of 10	48		
5' 3"	9 of 22	59				
6' 0"	8 of 22	52	4 of 10	38	2 of 5	29
6' 9"	7 of 22	46				
8' 0"	6 of 22	39	3 of 10	23		

* Units per row.

Easily Installed and Maintained—Each 4' Star section utilizes two 40W fluorescent lamps which are accessible from the top of the reflector. The Plaskon reflectors and end caps are light in weight, non-electrostatic, non-shatterable, non-combustible and are readily slid in and out for maintenance purposes without disassembly of the line. All visible metal parts are finished in satin aluminum.

The Star may be used singly in corridors or small rooms, or mounted in continuous rows. Continuous runs may be obtained from jobbers' stocks of bodies, reflectors, stems and end caps. Single units have twin suspension. Detailed installation instructions accompany each assembly.



Photometric Chart

Impartial tests by electrical testing laboratories to determine the candlepower efficiency of THE STAR in various planes have been plotted as a curve which demonstrates what may be expected from this unit. Data showing the estimated footcandles in service on various spacing arrangements are available. For further details, consult Sweet's File or write to

THE F. W. WAKEFIELD BRASS COMPANY
Vermilion, Ohio.

Wakefield Over-ALL Lighting

FOR OFFICE • DRAFTING ROOM • STORE AND SCHOOL



THE GRENADIER II



THE GRENADIER IV



THE COMMODORE



THE DIPLOMAT



grips. This provides more than normal safety as any one of the grips is designed to hold the scaffold under normal weight. The pumps accommodate a 24 in. scaffold and can be adjusted to 12 or 18 in. scaffolds. Newark Ladder and Bracket Co., Inc., Clark (Rahway), N. J.

PLASTIC UPHOLSTERY

Described as conveying a three-dimensional effect, is the new texture in Duran plastic upholstery, *Alpine*. This Duran

covering is said to embody the features of easy washability, pliancy and resistance to wear, scuffing and fading.

Alpine comes in the full Duran color line from pastels to deep tones. The Masland Durable Leather Co., Amber and Willard Sts., Philadelphia 34, Pa.

CABINET LOCK

The Yale "3-way cabinet lock" has a patented cylinder that permits the lock to be adapted to any one of three uses.

(Continued from page 192)

It can be used either as a drawer lock with the bolt moving vertically or as a cabinet and cupboard lock for either right hand or left hand doors, with the bolt moving horizontally.

In order to convert the lock to right- or left-hand operation, the cylinder can be rotated by releasing a small catch on the cylinder housing. The Yale & Towne Mfg. Co., Chrysler Bldg., New York 17, N. Y.

DRAFTING MACHINE

An outstanding feature of the improved Standard and Civil Engineer's Drafting Machines made by the Charles Bruning Co. is the *Equipoise* mechanism which is said to insure accurate alignment at all times on an inclined drawing board. Even though the board may be inclined as much as 20° from the horizontal, the accurate alignment is reported maintained.



Drafting machine features Equipoise mechanism to provide accurate alignment

Other new features include a revised protractor head assembly, a relocated and redesigned base line setting device for locking the protractor index point to any angle, and increased distance between clamp screws holding the drafting machine securely and rigidly to the drawing board. Charles Bruning Co., Inc., 4754 Montrose Ave., Chicago 41.

KITCHEN EQUIPMENT

New models of Kelvinator ranges and refrigerators adhere to standard modules of floor space. All new ranges are 39 in. wide, and all refrigerators, regardless of capacity, are 31 1/4 in. wide.

Masterpiece refrigerators provide 8 1/2 cu. ft. within the shelf area plus approximately two more cu. ft. in a refrigerated "fruit freshener." Home freezers, with 6 cu. ft. capacity, are 39 in. wide.

The ranges have all controls on the back panel and are designed for flush-to-the-wall installation. Kelvinator Division, Nash-Kelvinator Corp., Detroit 32, Mich.

NON-METALLIC CABLE

A new non-metallic sheathed cable has been designed to withstand weather

(Continued on page 196)

Amtico RUBBER FLOORING ADDS 7 NEW, STRIKING COLORS

WHITE AND BLUE

True permanent white, lightly marbled with blue.

WHITE AND BLACK

Tracings of black on a true white field.

WHITE AND GREEN

Permanent white, veined with a delicate sea-green.

TUSCANY RED

A deep red mottled with white, black and gray.

AMERICAN BEAUTY

A clear, cool red illuminated with white.

RESEDA GREEN

Soft gray-green, marbled with faint markings of white.

COLONIAL BLUE

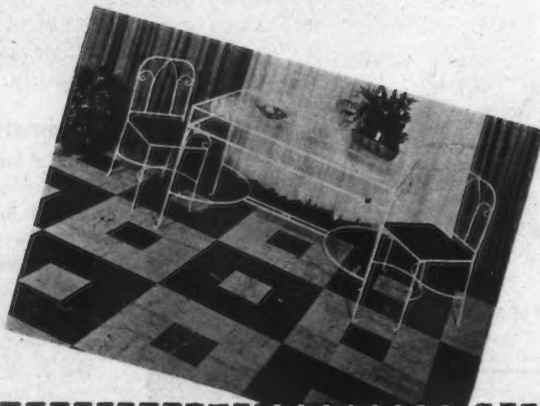
Rich grayed blue, variegated with tones of lighter blue.

These seven new marbled colors are an addition to the Amtico line of Rubber Flooring, which now includes eighteen beautiful colors. Architects and interior decorators can now plan striking contrasts or harmonious blendings with the decor of beautifully appointed rooms.

Amtico Rubber Tile, "America's Most Beautiful Rubber Flooring," is a luxury only in appearance, since its lovely and long-wearing quality brings the cost down below less permanent flooring material.

Remember, "Amtico" is quiet, long-wearing and easy underfoot. Cigarette burns and stains leave no permanent blemishes.

Send for free samples



AMERICAN TILE and RUBBER COMPANY
Perrine Avenue, Trenton 2, New Jersey

Please send me samples and literature showing Amtico Rubber Flooring in full color.

NAME

ADDRESS

AMERICAN TILE & RUBBER CO. • TRENTON, N. J.
Makers of Quality Rubber Flooring for over 30 years.

ROCKLATH*
LOCKED TO
CHANNELS
WITH... NEW



BRACE-TITE LATHING SYSTEM **for Suspended Ceilings**

Here's the new system for suspended ceiling construction that gives you a similar type of rigidity to that provided by nail-on ROCKLATH plaster base. It's adaptable, economical, easy to install, and locks like a screen door hook!

An exclusive development of U-S-G research, the BRACE-TITE Lathing System requires only standard tools, and does not require special training of lathers or plasterers. Standard channels, hot or cold-rolled, and conventional 12-inch or 16-inch spacing are used. U-S-G provides all the materials for the complete BRACE-TITE System... U-S-G has sole product responsibility.

BRACE-TITE is an economical system, because the material cost is low—installation expense is held to a minimum.

This suspended ceiling system requires just 1/2 inch of plaster—applied in just two coats! You can double back! The assembly will be strengthened, because it's wire reinforced with BRACE-TITE Field Clips.

Ask your U-S-G representative about the BRACE-TITE Lathing System next time you see him... and be sure to request a copy of the new BRACE-TITE folder.

*T. M. Reg. U. S. Pat. Off. for a USG plaster base



United States Gypsum, Chicago 6

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

LOOK-One Hand!
A.W. Faber's quick-action
(black or colored)
LOCKTITE
refill works the thumb drawing pencil with a flip of



1) Patented collet to hold lead in bulldog grip.
2) One hand clutch operation to avoid touching lead and smearing fingers.
These are but two exclusive features which make LOCKTITE the favorite of professional men. Collet prevents lead breaking or slipping. Try this clean, balanced, sturdy mechanical beauty and you will surely want to own it.
Holds all standard graded drawing or retouching leads. Winner Techno-TONE No. 1930 assures best results.
ALSO AVAILABLE IN RED, BLUE, GREEN, YELLOW, CARMINE, ORANGE and WHITE - holding hardy WINNER Techno-TONE crayon leads for coloring, sketching and checking.
BLACK in degrees 4B to 9H.
Sold at Stationers, art and drawing supply stores, photo supply shops and Blueprinters.

GUARANTEED OF COURSE!

AW FABER-CASTELL
PENCIL COMPANY INC. NEWARK N.J.

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(Continued from page 194)

extremes, fumes, corrosive vapors and fungi. The cable's conductors are encased in thermoplastic insulation which is then wrapped in paper, glass braid and finally a thermoplastic sheath. General Electric Appliance and Merchandise Dept., Bridgeport 2, Conn.

AUTOMATIC BURNER

A compact winter air conditioning furnace is available in the *Quiet Automatic Unit*. The furnace, blower, humidifier and casing are all assembled for oil or gas operation and included is an electrical control or relay. Four sizes are available: 70,000, 90,000, 155,000 and 200,000 Btu output. Quiet Automatic Burner Corp., Newark 4, N. J.

WALL COVERING

Tru-Grain wall coverings feature 21 different patterns reproduced from woodgrains and marbles. Covered with a layer of cellulose plastic, they are said to be impervious to stain, water resistant, scuff proof and fade proof.

The coverings can be used for wall-paper, table tops, floor coverings, fireplace panels and lampshades. The Ullman Co., 319 McKibbin St., Brooklyn 6, N.Y.

MULTI-FUEL FURNACE

A new multi-fuel furnace, in sizes small enough for a five-room house and large enough for the average ten-room house, is said to operate efficiently either hand-fired, stoker-fired, or with conversion oil or gas burners.

The unit is complete with slow speed centrifugal blower, heavy duty motor, variable speed drives and filters.

The new furnace is available in sizes from 105,000 Btu to 172,700 Btu at the bonnet. Gravity models from 88,150 Btu to 154,200 Btu are also available. Stokol Stoker Co., Indianapolis, Ind.

METAL DOORS, FRAMES

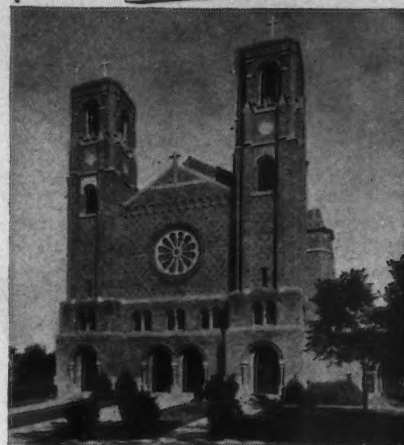
Metal doors and frames for residential, commercial and public buildings are being manufactured by a continuously roll-formed process which is said to produce precision not readily obtainable by conventional methods. On the list of products to be manufactured by the American Steel Door Co. are standardized metal door and frame units of swing, double-acting and sliding closet types. American Steel Door Co., Detroit, Mich.

FLOOR TILE

Durability and flexibility are the qualities attributed to a new plastic asbestos floor tile called *Permalite*.

(Continued on page 198)

Syracuse Parish Enjoys Modern Steam Heat



CHURCH OF THE MOST HOLY ROSARY, Syracuse, N. Y., N. H. LaVoute, Architect. M. B. Moyer, Consulting Engineer. Modernized 1946 with Webster Moderator System of Steam Heating. Joseph Burke, Heating Contractor. Hillebrand & Owen, Electrical Contractor.

In 1946, the Church of the Most Holy Rosary, Syracuse, N. Y., decided to do something about the uneven heat distribution in the three parish buildings.

Here was a church, a school and a convent—modern in appearance, but years out-of-date in steam heating distribution and control.

The two-pipe vacuum steam heating systems used in the church and school—the last word when first installed—were wasteful when compared with present-day standards. The heating modernization program proposed by the Very Rev. H. C. McDowell and the Building Committee called for conversion to a "Controlled-by-the-Weather" Webster Moderator System. The smaller convent building was equipped with a separate Webster Type "R" Vapor System.

Results: completely satisfying. Church, school and convent are heated evenly and rapidly. The reduction in wasteful overheating has helped to cut fuel costs.

What is your heating problem? If your heating system is without control, or has inadequate on-and-off control, find out about the Webster Moderator System today.

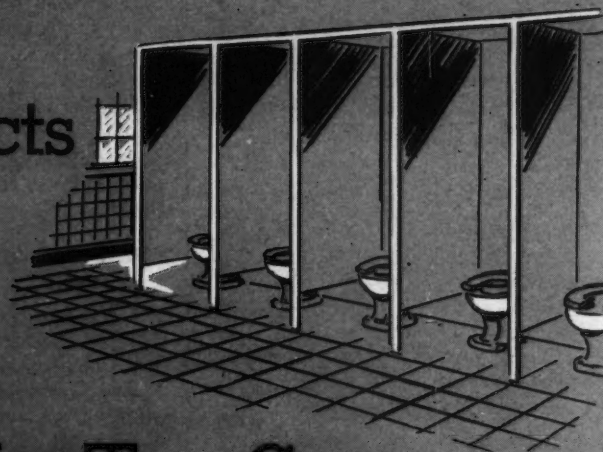
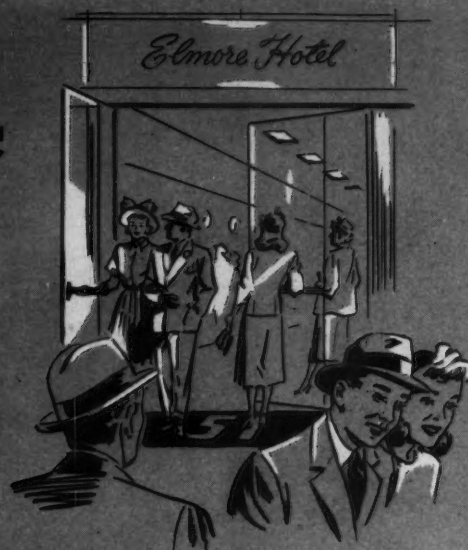
Address Dept. AR-8

WARREN WEBSTER & CO.
Camden, N. J. : Representatives in Principal Cities
In Canada, Darling Brothers, Limited, Montreal

Webster
HEATING

The greater the traffic

The greater
the importance
of quality products



Specify Church Mol-Tex Seats

Non-inflammable
Indestructible
Impervious

See "SWEETS" for details

Church Seats

"THE BEST SEAT IN THE HOUSE"



No. 9900
Church Mol-Tex Seat

C. F. CHURCH MFG. CO. HOLYOKE, MASS.
Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

Serving home and industry

AMERICAN STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

When Manpower Waits...

Losses pile up every time manpower is forced to lose productive minutes waiting for doors to be opened... standing by while traffic passes through... taking time to close them. You can easily stop these hidden profit leaks.



Manpower doesn't wait
when you specify Kinnear
Motor Operated Rolling Doors.

Push-button switches provide instant, complete, fingertip control of door action at all times, from any number of convenient points. A split-second of manpower opens or closes the doors; the Kinnear Motor Operator does the rest, automatically.

You also provide extra space with Kinnear Rolling Doors. They coil out of the way, safe from damage by wind or vehicle, into a small area overhead. No wall, floor or ceiling space, is used as they open or close. All-steel construction assures extra, low-maintenance service, added protection against fire, storm, theft. Any size, for old or new buildings. Write for details.

The KINNEAR Manufacturing Co.
Factories: 1860-80 Fields Ave., Columbus 16, O.
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in all Principal Cities

Saving Ways in Doorways
KINNEAR
ROLLING DOORS

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(Continued from page 196)

The asbestos tile is said to be unaffected by grease, oil, alkaline moisture and mild acid solutions.

Because of its flexibility, the tile is reported to conform to uneven floor surfaces and absorb the normal "play" of wood floors.

A wide range of marbleized colors are available. Johns-Manville, 22 E. 40th St., New York 16, N. Y.

WINDOW FAN TIMER

A portable all-electric timer for automatically shutting off window and other portable fans after any pre-selected time is being manufactured by the Paragon Electric Co.

Housed in a compact anodized aluminum case, the *Portable AF* is available in two time ranges, 0 to 10 and 0 to 20 hours.

In order to use the unit, the timer cord is plugged into any convenient outlet, and the fan cord is plugged into the receptacle at the bottom of the case. Paragon Electric Co., Two Rivers, Wisc.

FOLDING AWNING

New in home equipment is a folding aluminum awning which may be raised or lowered from the inside. The awning is made of heavy gage aluminum with horizontal louvres designed to nest themselves in a compact fold when raised. Screen pulleys or window crank-winders make inside operation possible.

Because of individually hinged louvres and special design, the *Ron-Del* aluminum awning is said to be adaptable to various window sizes and types including casements. Ron-Del, Inc., P. O. Box 658, Smithville, Texas.

SPONGE RUBBER

Recently developed sponge rubber is said to remedy one of the important defects of conventional types by being flame resistant.

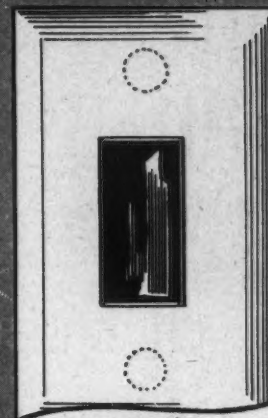
The new sponge rubber can be delivered through a hose, where it sponges at the nozzle; cast in sheets and in open molds; or continuously produced in sheet form.

Adaptable to construction use, the sponge rubber is made in a simple, on-the-job apparatus which delivers the material for insulation, sound-proofing or cushioning. Commonwealth Engineering Co., Dayton, Ohio.

PLASTIC WALL TILE

Four new pastel shades have been developed for plastic wall tile including blue, green, peach and yellow. Formerly only plain or marbleized standard shades were reported available. Pittsburgh Tile Co., Pittsburgh, Pa.

**NO TWIST-
NO PUSH-
NO PULL-**



**Just TOUCH
your lights on!**

TOUCH-PLATE
LOW VOLTAGE
LIGHT CONTROL SYSTEM

**At Last A TRULY
MODERN SWITCH**

Touch it and the lights go on... touch it again and they're off! No more conduits to light switches... multiple controls at negligible cost... new streamlined beauty and absolute safety... this is the revolutionary new Touch-Plate System for residential lighting control. If you're looking for the newest and the best, let us tell you the whole story... just drop us a card.

Approved by the
Underwriters' Laboratories



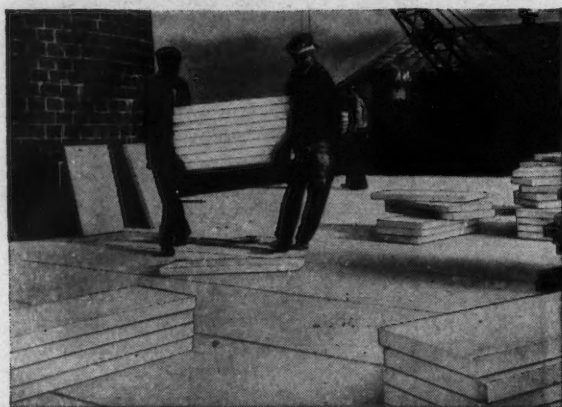
THE RELAY DOES
THE WORK!

TOUCH-PLATE
DISTRIBUTORS, INC.

2038-42 Bay Street
Los Angeles 21, California



KAYLO INSULATING ROOF TILE is strong—runway shown above supports wheelbarrow traffic during construction.



KAYLO INSULATING TILE is lightweight. Each tile is $2\frac{5}{8}$ x 18 x 36 inches in size, weighs approximately 21 pounds.



KAYLO INSULATING ROOF TILE can be cut and fitted with ordinary hand or power tools right on the job.



WHEN LAID, Kaylo Insulating Roof Tile is covered with conventional built-up tar or asphalt roofing. No other insulation is necessary.



KAYLO INSULATING ROOF TILE is laid on sub-purlins. After grouting joints, deck is ready for built-up roofing.



New idea for industrial roofs!

**Kaylo Insulating Roof Tile offers advantages
never before available in a structural product!**

KAYLO Insulating Roof Tile combines in a single material structural strength, extreme lightness and high insulating ability. Composed entirely of inorganic materials, Kaylo Roof Tile is fireproof.

Owners, Architects and Builders all profit with Kaylo Insulating Roof Tile. It furnishes fire protection, cuts fuel costs and is easy to install.

Because Kaylo Roof Tile forms a lightweight and structural deck, less steel is required for roof framework. Cutting and fitting of tiles, when needed, can be done on jobsite, using ordinary hand or power tools.

For further information, mail the coupon today.

AMERICAN STRUCTURAL PRODUCTS COMPANY

P.O. Box 1035, Dept. E-415

Toledo 1, Ohio

Gentlemen: Please send free 8-page illustrated booklet, "Kaylo Insulating Roof Tile."

☐ Request for sample is enclosed on company letterhead.

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Address _____

Firm _____

City _____ Zone _____ State _____

Announcing

**THE NEW
1500 SMITH-MILLS
OIL BURNING BOILER
for small homes**

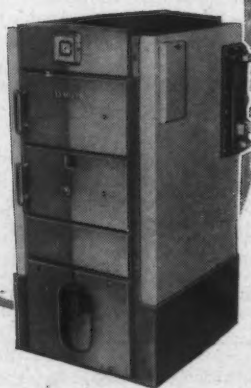
Again H. B. Smith, the leader in the development of integral boiler and hot water heater combinations, offers a new oil-fired boiler with built-in tankless heater — for the one-bathroom home. It's compact, because the heater is completely and neatly contained in the rear section of the boiler, without space-wasting outside heater or tank . . . efficient, because it provides a steady and ample supply of domestic hot water . . . easily installed, because it's designed for speedy assembly on the job.

But that's not all!



The new Smith-Mills 1500 is economical, efficient, simple in operation, good looking—all in all a clever package, typical of the modern H. B. Smith Co.

Be sure to investigate the new Smith-Mills 1500 when home-owners ask for a boiler that delivers the best at lowest cost.



H. B. Smith
CAST-IRON BOILERS
THE H. B. SMITH CO., INC.
67 MAIN STREET, WESTFIELD, MASS.
Offices and Representatives in Principal Cities

**ARCHITECTURAL
ENGINEERING**

TECHNICAL NEWS AND RESEARCH

(Continued from page 152)

pp., illus. The Ric-wil Co., Dept. 584C, Union Commerce Bldg., Cleveland, Ohio.*

Soda Fountains

Seco-Superex Soda Fountains. Shows typical installations of soda fountains in various arrangements as used for drug stores and restaurants. 4 pp., illus. Seco Co., Inc., 5206 S. 38th St., St. Louis 16, Mo.

Steel Doors

Strand Garage Doors. Folder describes Strand all-steel garage doors, featuring both the canopy-type and receding (track type) doors. 8 pp., illus. Strand Building Products Co., Dept. P-112, 1710 Buhl Bldg., Detroit 26, Mich.

Floor Coatings

Endur Carborundum Floor Coatings. Brochure lists advantages of carborundum floor coatings for concrete floors. Colors available are shown. 8 pp., illus. Endur Paint Co., 46 Cornhill, Boston 8, Mass.

Fireplaces

Successful Fireplaces. Contains details, dimensions and equipment for designing and building fireplaces of all types. A chapter on fireplace history covers ancient, medieval, colonial and early American designs. Other chapters discuss and diagram corner and two-way fireplaces, heat circulating fireplaces and outdoor fireplaces. Tables in book are said to show for the first time the new modular flue sizes as well as the old standards for various fireplace openings. 80 pp., illus. The Donley Brothers Co., 13932 Miles Ave., Cleveland 5, Ohio. 50 cents.

Grease Traps

Murco Grease Trap. Pictures and describes operation of Murco Grease Trap including exclusive construction features. Detailed drawings are given for standard and dish washing machine types along with installation sketches. The booklet has a section with capacity tables and recommendations for various uses. A small unit is especially applicable to septic tank use. 8 pp., illus. D. J. Murray Mfg. Co., Wausau, Wis.

Metal Sheets

Aluminum Sheet and Plate. Technical information for aluminum sheet and plate alloys, gauges and sizes. Topics discussed include cost factors, formability, weldability, riveting, brazing, soldering, machinability and resistance to chemical attack. Specifica-

(Continued on page 202)

Architect: Marion H. Caine,
Portland, Oregon



FOR MODERN DESIGN

The rich, penetrating colors of Cabot's Creosote Shingle Stains bring out all the natural beauty of wood siding, shingles or clapboards . . . and their content of 60% to 90% of pure creosote oil—the best wood preservative known—assures that this beauty will be protected for years against decay and the attacks of termites.

Cabot's Creosote Stains actually dye the wood, displaying grain and texture to their best advantage. And because pure pigments and no adulterants or fillers are used, colors remain fresh and true, even after long exposure.

Cabot's Creosote Stains come in a wide range of attractive colors, clear brilliant hues to weathering browns and grays. They are economical—quick and easy to apply—do not peel or blister, even on green wood.

Free Booklet "Stained Houses" contains complete information. Write Today for your copy and color card.

Samuel Cabot, Inc.

2187 Oliver Building
Boston 9,
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**Cabot's
Creosote
Stains**

THE *Light* YOU WANT..... WHERE YOU WANT IT!

A PERMAFLECTOR PORTRAIT

The Kleinhans Co.
Buffalo, N. Y.

Flexible Pittsburgh Permaflexor Lighting Equipment gives you full freedom of design in your building and modernization programs. With this scientifically engineered, distinctively styled equipment you create exactly the illuminating results you require.

The complete line of Pittsburgh Permaflexor Fluorescent and Incandescent Lighting Equipment meets every interior or exterior installation requirement.

For full particulars on this standard equipment which gives custom lighting results, and detailed illustrations of many application possibilities—send for Catalog 48-F.

COMPANION FLUORESCENT AND INCANDESCENT UNITS

Detail of Adjustable Incandescent Downlight used in-line with the 40-Series Universal Troffers. The new Pittsburgh Permaflexor Catalog 48-F lists the complete line of fluorescent troffers, luminaires and companion incandescent units.

PITTSBURGH REFLECTOR COMPANY

OLIVER BUILDING • PITTSBURGH 22, PENNSYLVANIA

MANUFACTURERS OF FLUORESCENT AND INCANDESCENT LIGHTING EQUIPMENT
DISTRIBUTED BY BETTER ELECTRICAL WHOLESALERS EVERYWHERE



Permaflexor Lighting Engineers in All Principal Cities

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ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(Continued from page 200)

tions and definitions. 48 pp., illus. Reynolds Metals Co., 2500 So. 3rd St., Louisville, Ky.*

Water Coolers

The Water Cooler Story. Descriptions of types of water coolers marketed with suggestions for correct type and number of water coolers to meet various requirements. Typical installations in manufacturing plants, department stores, office buildings, filling stations and hospitals. 28 pp., illus. Drinking Water Cooler Manufacturer's Assn., 1107 Clark Bldg., Pittsburgh 22, Pa.

Fluorescent Fixtures

Guthlite "Jackknife Hinge Luminaires." Pictures new fixture permitting maintenance work to be done at floor level. 4 pp., illus. Edwin F. Guth Co., 2615 Washington Blvd., St. Louis 3, Mo.

Masonry

Modular Masonry. Details and instructions for modular masonry layout including color charts and 25 drawings. 50 pp., illus. Stark Brick Co., Canton, Ohio.*

Fans

Hartzell Lo-Noise Fan (Bulletin 2001). Includes air delivery tables for all fan sizes and drawings. 4 pp., illus. Hartzell Propeller Fan Co., Piqua, Ohio.

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

Harry Sims Bent, Architect, 1240 South Marengo St., Pasadena 5, Calif.

Joseph E. Blanton, Architect, Box 516, Albany, Texas

Herbert I. Fogelberg, Architect, Garrison District Office, Corps of Engineers, Fort Lincoln, P. O. Box 300, Bismarck, N. D.

Guy B. Hayler, Civil Service Examiner, 151 City Hall, San Francisco, Calif.

Donald F. Hiscox, Technical Equipment Consultant, Bagley Hall, University of Washington, Seattle, Wash.

Dott. Ing. Luigi Ravelli, Via Moncalvo 18, Turin, Italy

Daniel M. Robbins & Associates, Architects, Kilpatrick Bldg., Omaha, Neb.

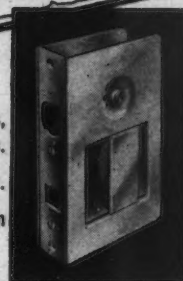
J. G. A. Shepard, Architect, 3014 E. 12th, Tulsa, Okla.

Shively's Drafting Service, 112 North 7th St., Room 5, Terre Haute, Ind.

Bernard Wilson, Architect, 21 Summit Ave., Salem, Mass.



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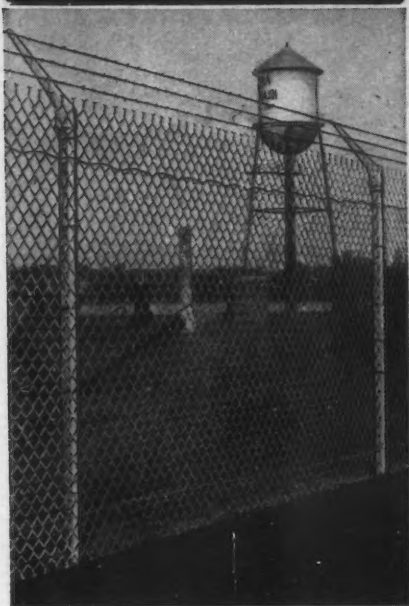
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REQUIRED READING

(Continued from page 30)

regard to the socio-economic factors that influence it.

The main section is devoted to a study of Philadelphia. This section begins with an historical sketch of that city and the development of housing therein. A careful analysis of all the suburbs and a complete survey of present housing follows, and the book concludes with clear and concise recommendations for the future improvement of housing in Philadelphia.

LARGE AREA SURVEY

Conurbation. A Survey of Birmingham and the Black Country. By the West Midland Group. The Architectural Press (9-13 Queen Anne's Gate, London S.W. 1, Eng.), 1948. 9 by 11½ in. iv + 288 pp. illus. maps, photographs, charts, tables. 30s.

Conurbation is a word used to signify that industrial area of England where the towns are closely grouped and connected by suburban industrial and building development — namely Birmingham and the Black Country. *CONURBATION* as a book is essentially a detailed and lengthy report, prepared by the West Midland Group on Post-War Planning and Reconstruction, which analyzes the main features of the present Black Country area, its population, its industrial structure, the uses of its land, the condition of its houses and factories, and systems of local government.

There are many charts, maps and statistics included in the publication which are used to illustrate various problems and solutions.

NEIGHBORHOODS IN GENERAL

Planning the Neighborhood. By the American Public Health Association Committee on the Hygiene of Housing. Public Administration Service (1313 E. 60th St., Chicago 37, Ill.), 1948. 8 by 10½ in. xiv + 90 pp. tables, statistics. \$2.50.

PLANNING THE NEIGHBORHOOD is the first in a series of three monographs, and is a report on the environmental aspects of residential areas and the physical setting or situation of the home. There is a discussion of the basic health criteria and provisions that should be made when planning a residential development.

To mention a few of the topics discussed, there are such headings as Protection of Livability Through Neighborhood Density Control, Design of Streets, Outdoor Recreation, Indoor Social and Cultural Facilities, Neighborhood Shopping, Removal of Refuse, Water Supply, Freedom From Local Hazards and Nuisances, etc.

Numerous statistical tables are used to augment the text and to further clarify the material discussed.

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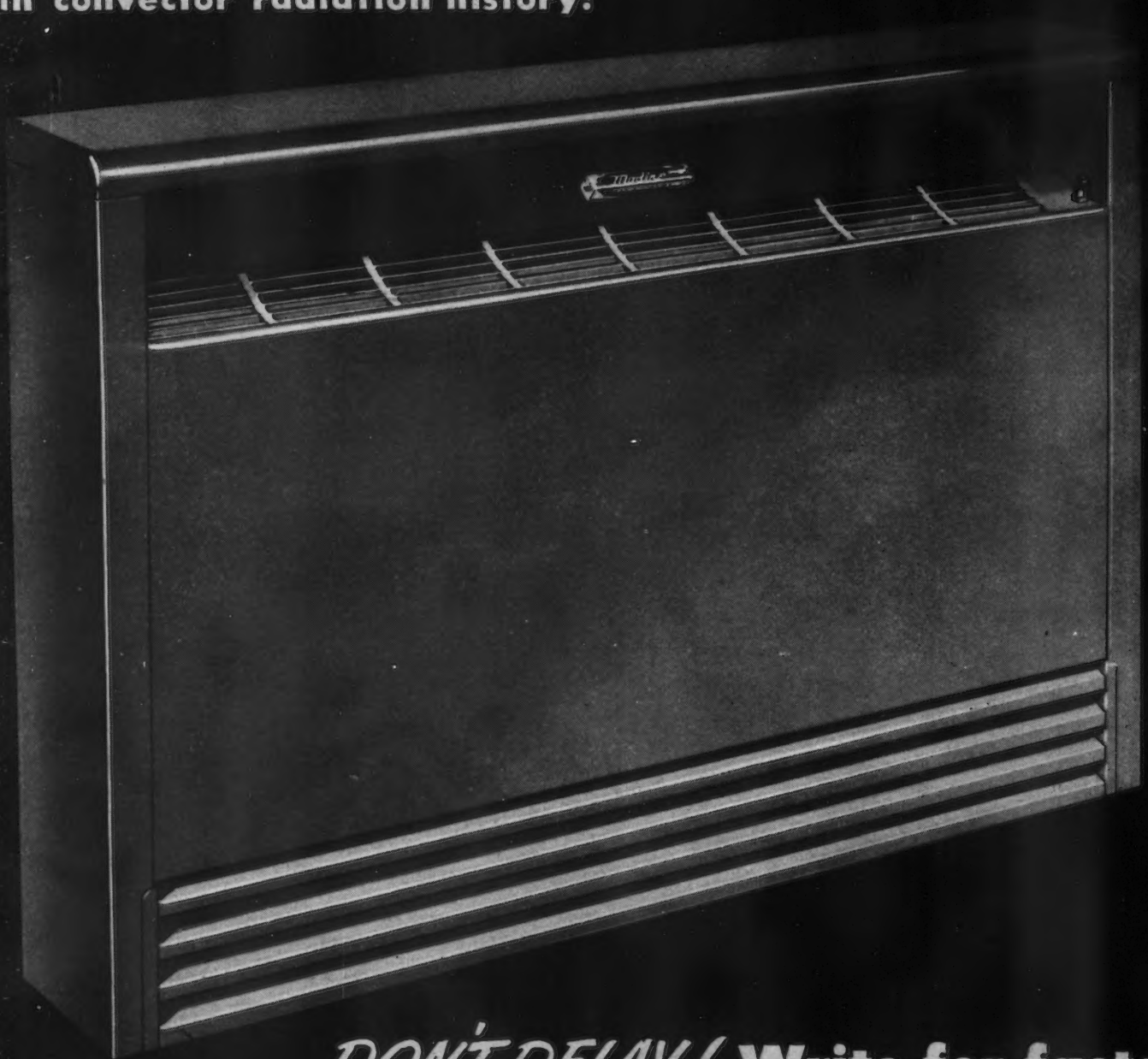
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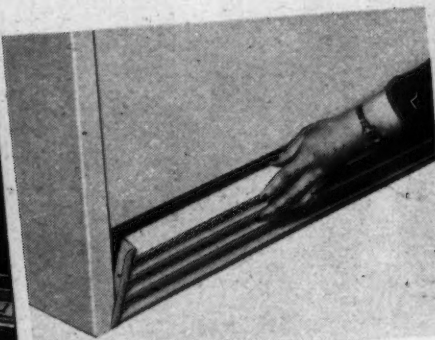
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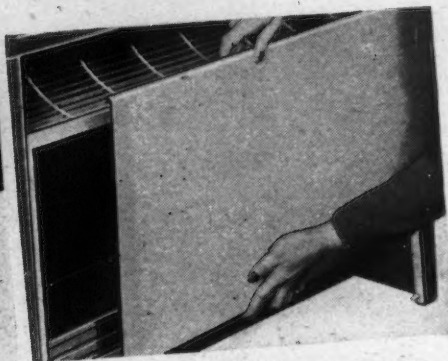
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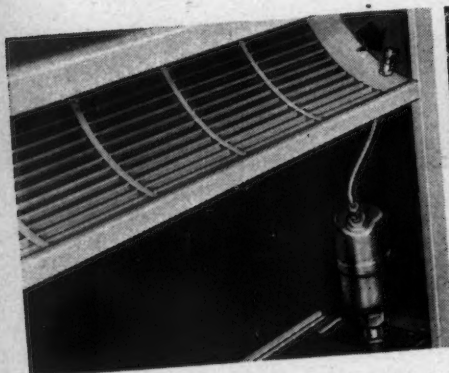
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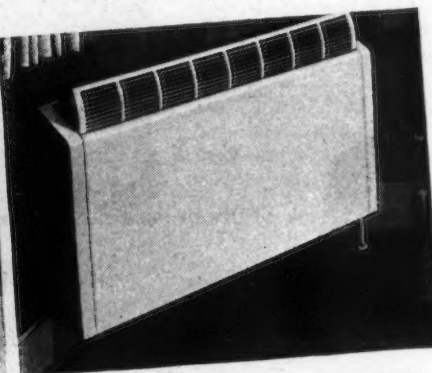
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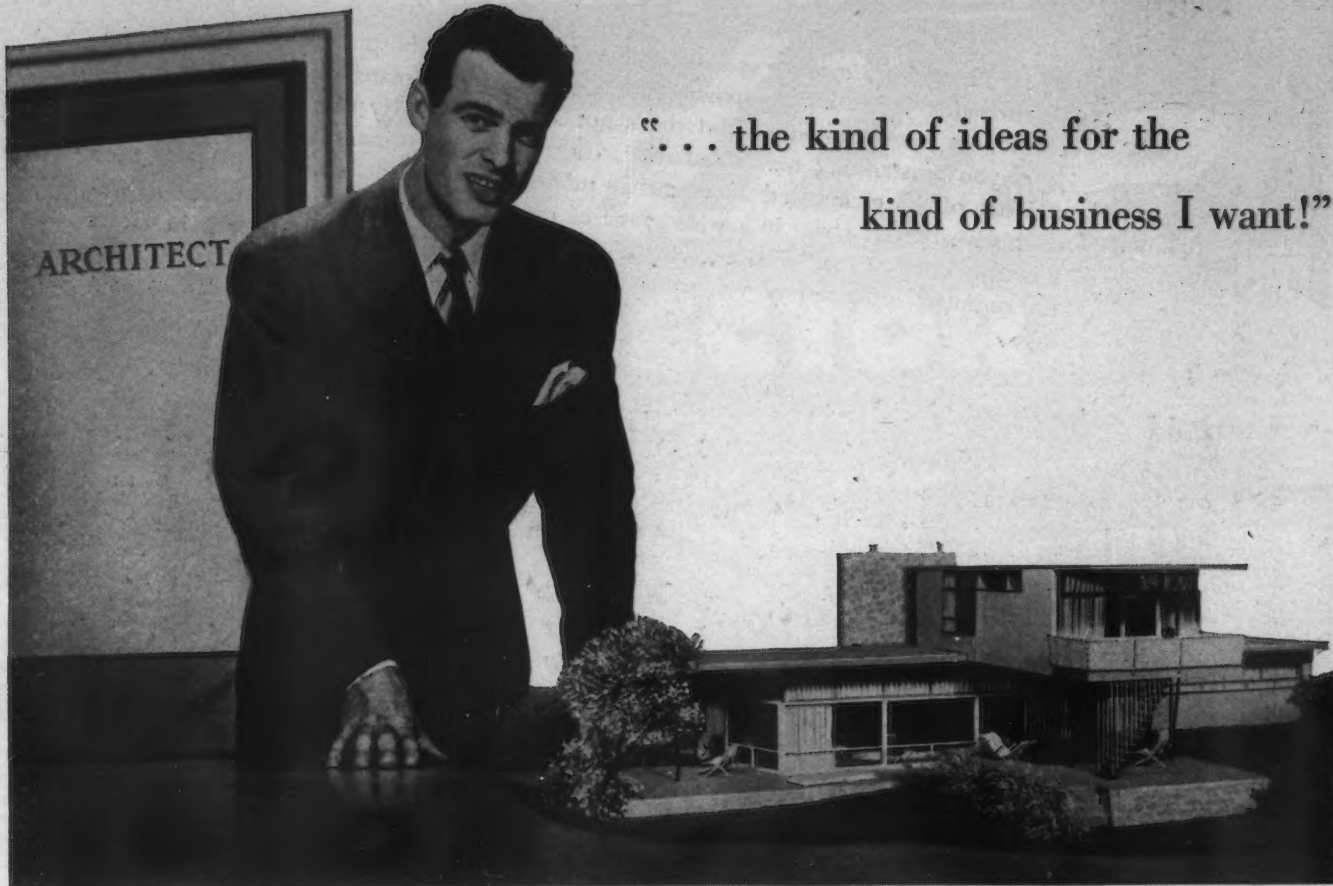
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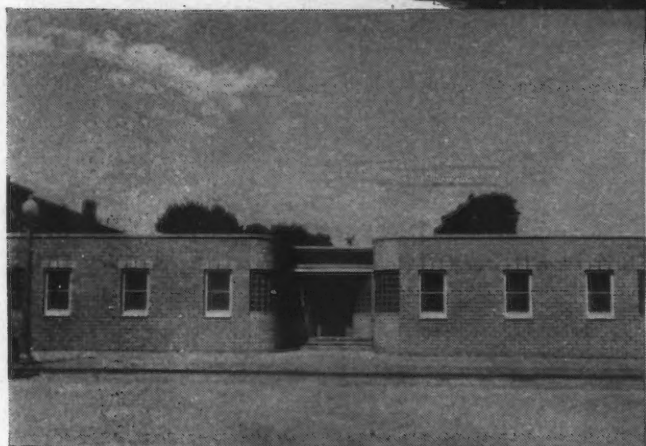
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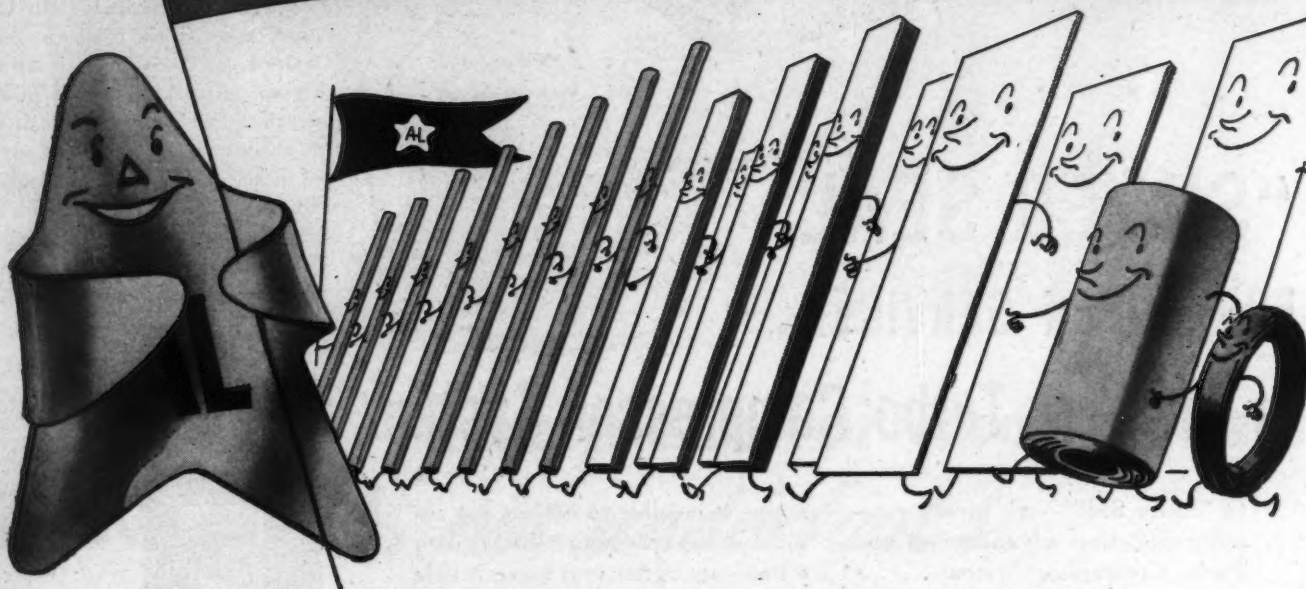
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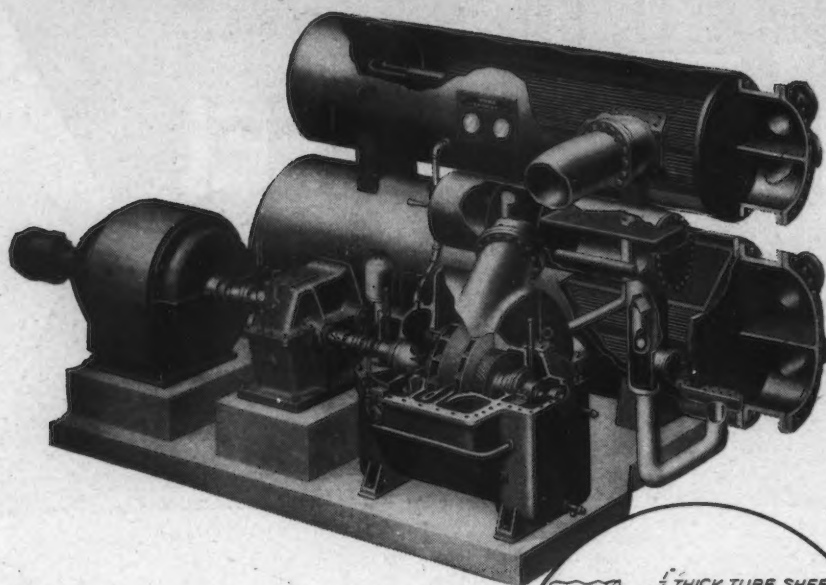
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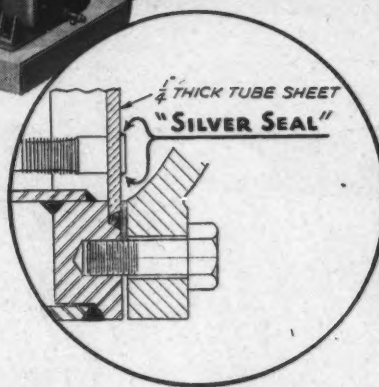
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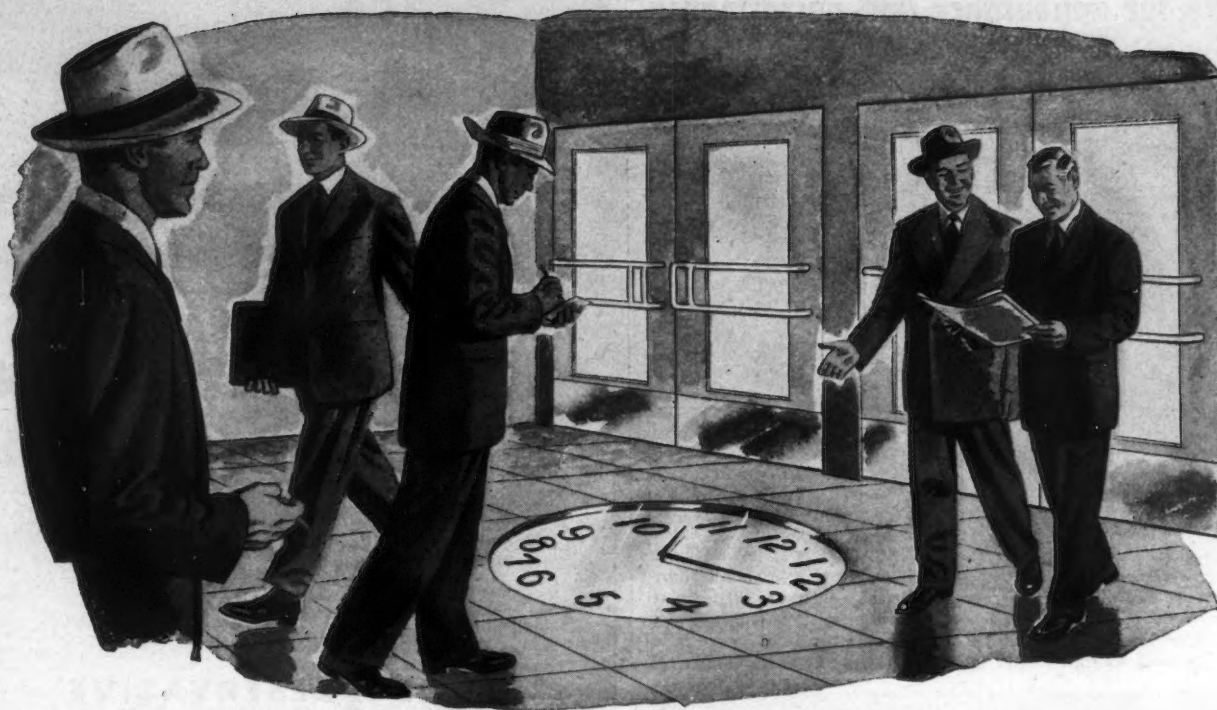


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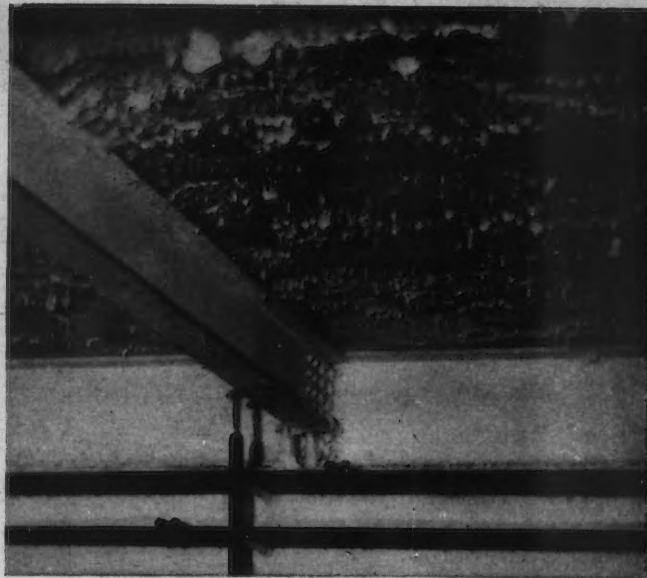


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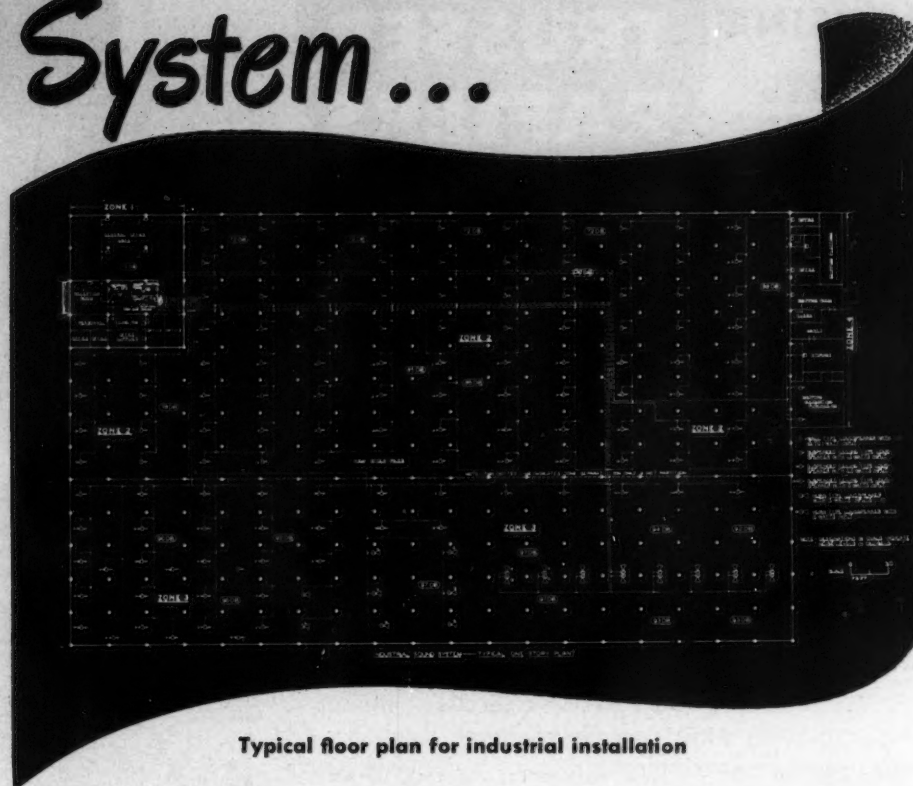
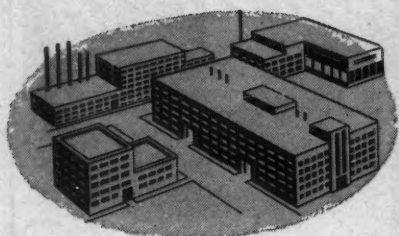
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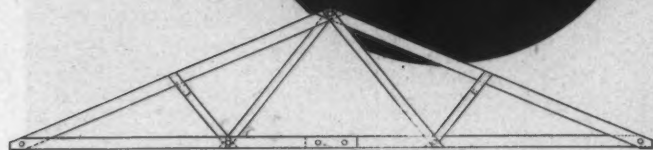


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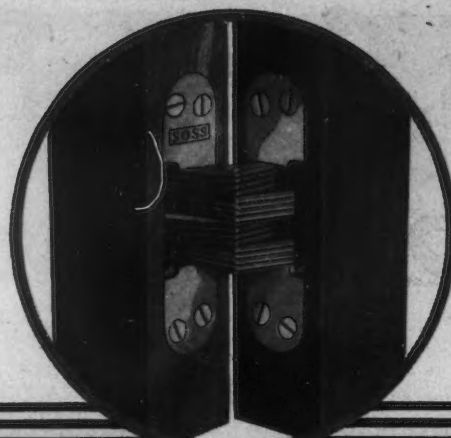
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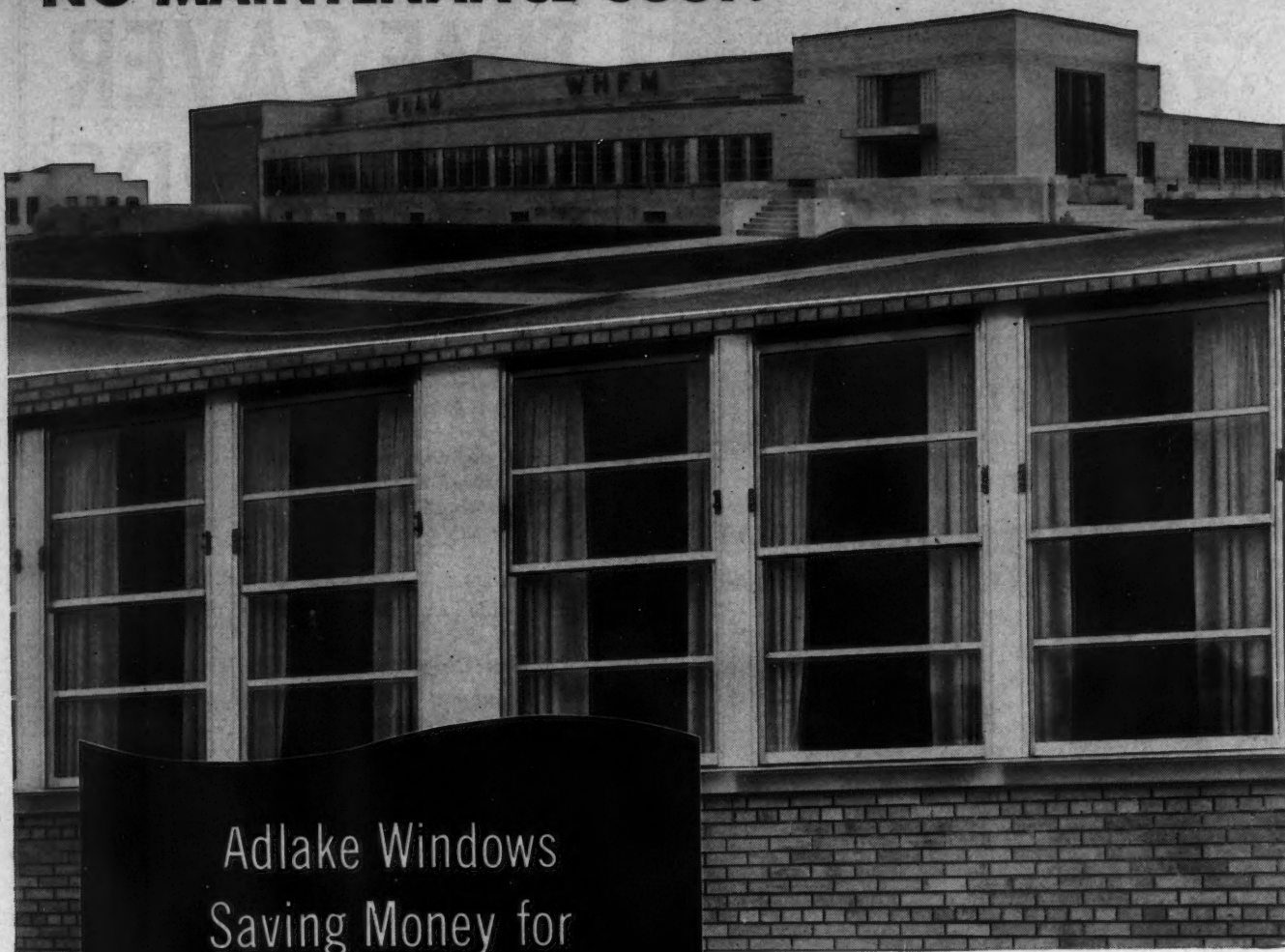
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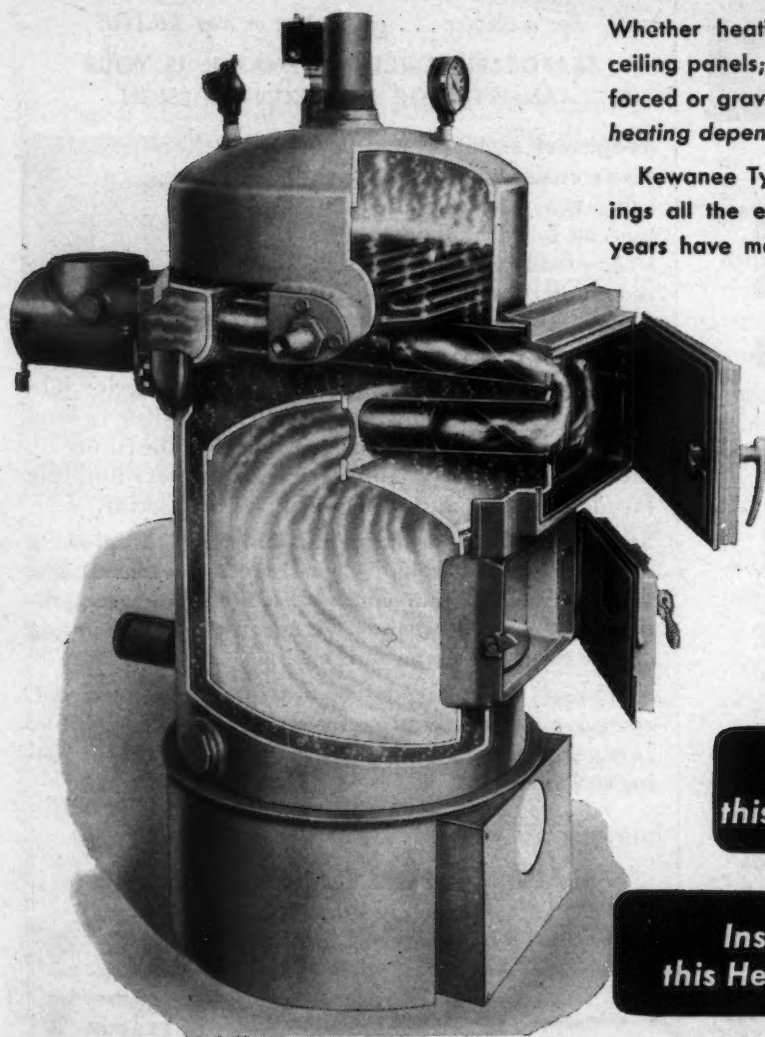
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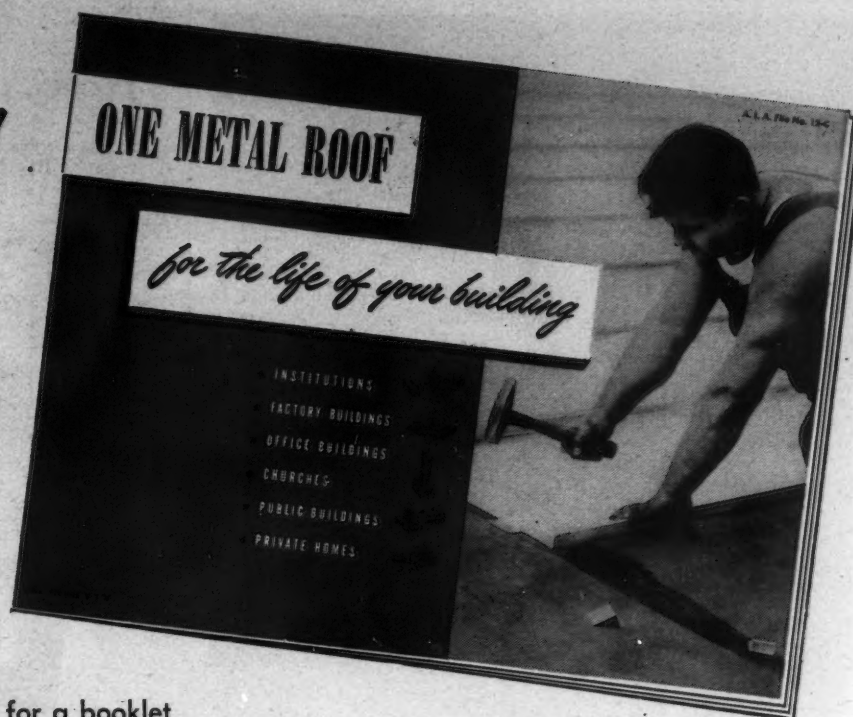
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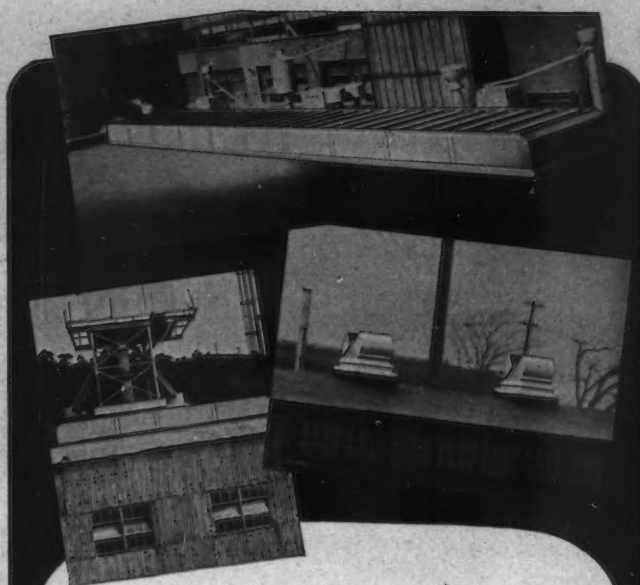
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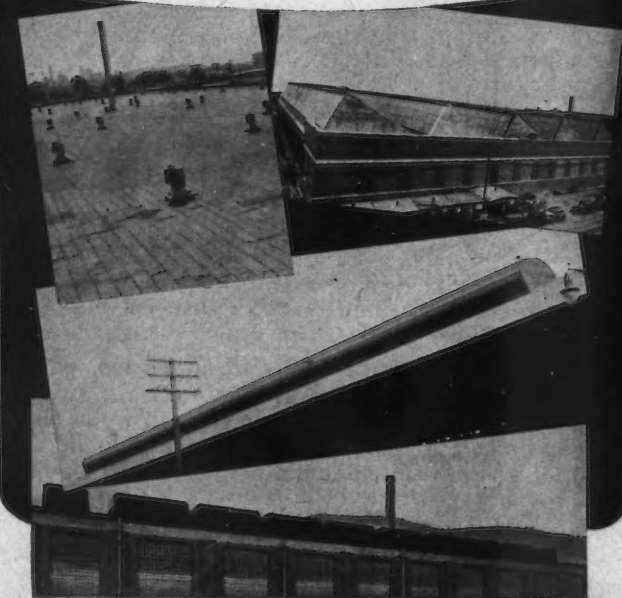
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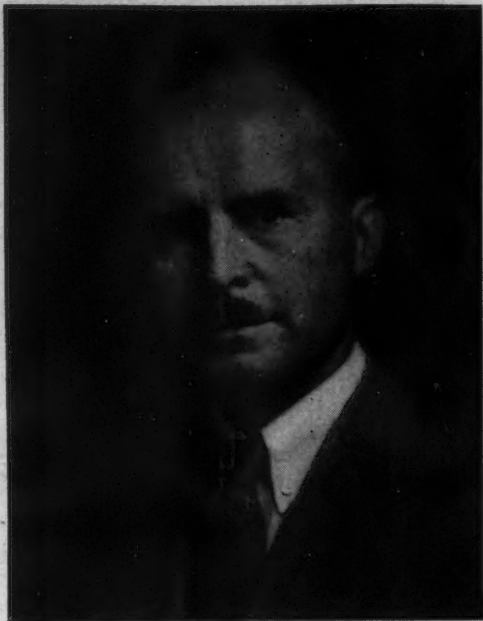
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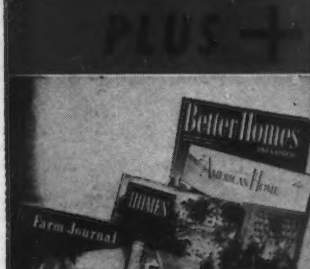
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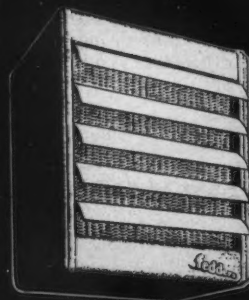
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The distinctive architectural treatment includes a copper facing of the roof overhang. It is constructed of 16 oz. Revere sheet copper, $\frac{3}{4}$ " standing seam—2'0" c.c. In addition to this use of copper for its color and beauty, copper was also used for flashing and window sills.

Whenever you design or install sheet copper construction, it will pay you to take full advantage of the new technical data developed by the Revere Research Laboratories. You'll

find these data in Revere's booklet, "Copper and Common Sense." This authoritative manual of sheet copper construction has been widely distributed to architects and sheet metal contractors, and there is probably a copy in your files. Be sure to refer to it as your guide to fine and durable sheet copper construction.

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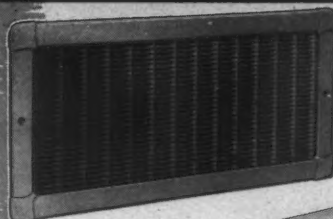


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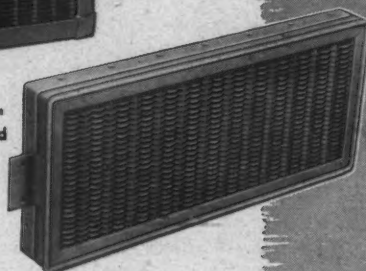
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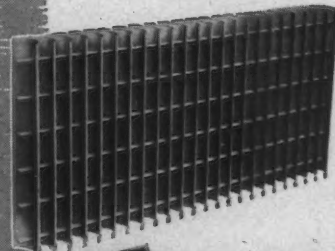
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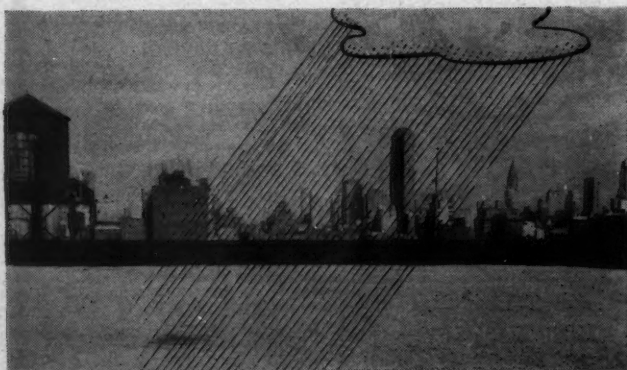
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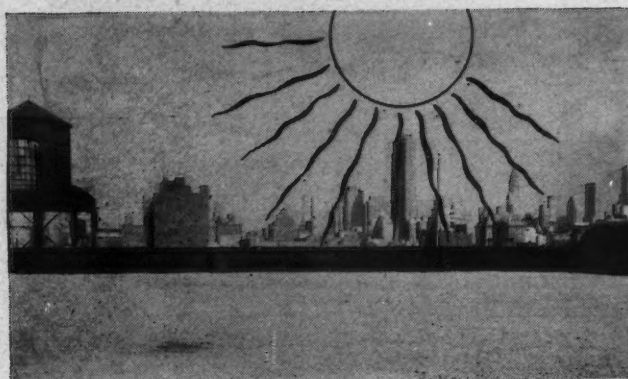
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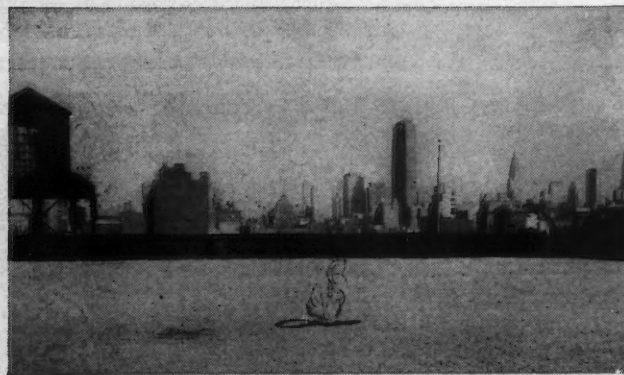
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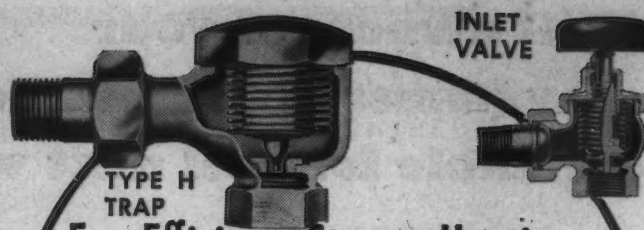
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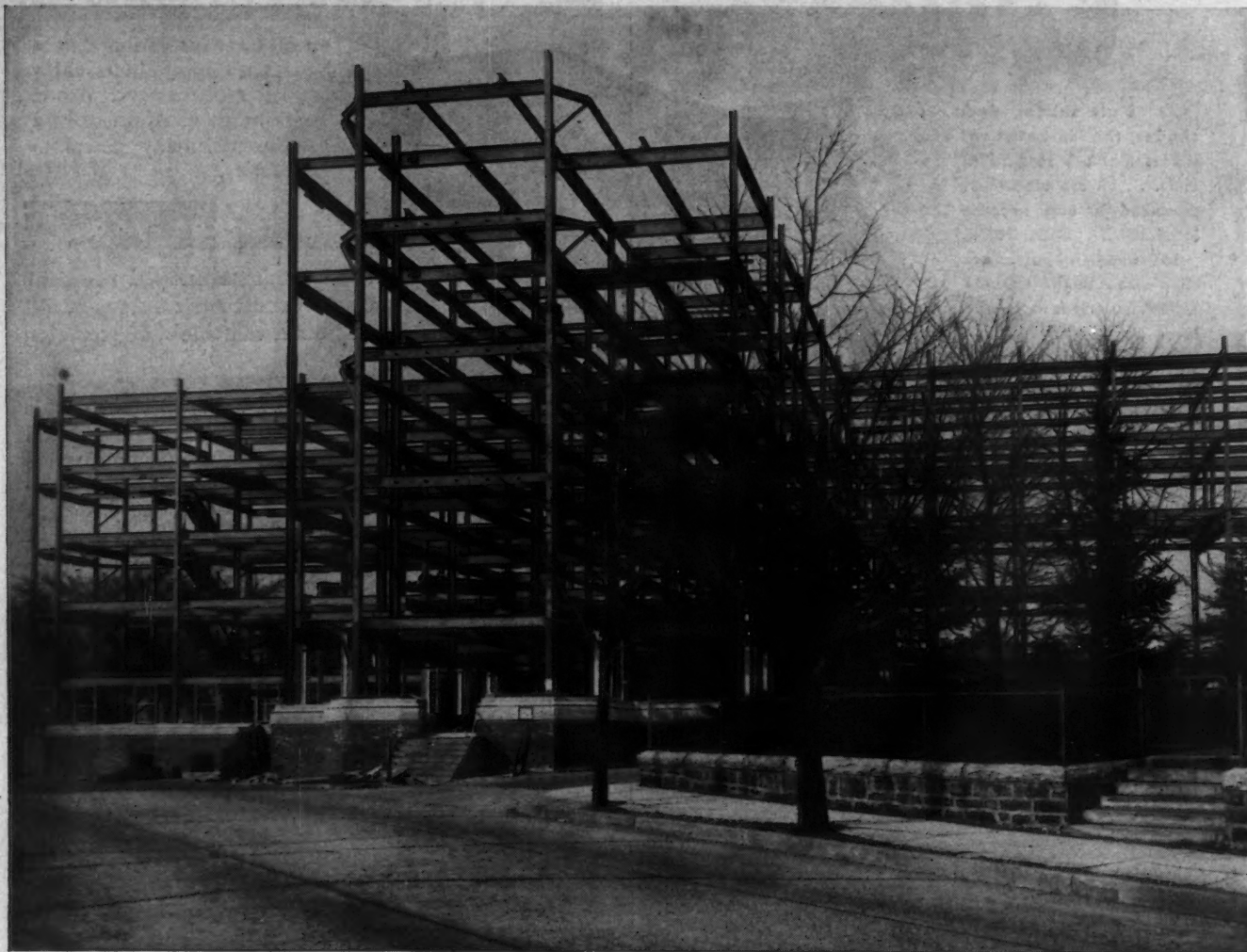
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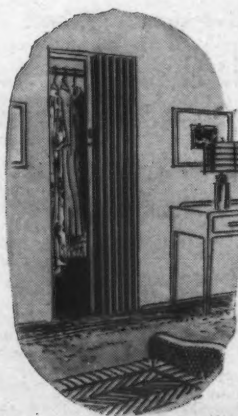
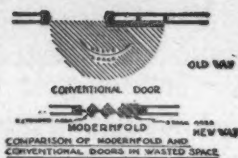
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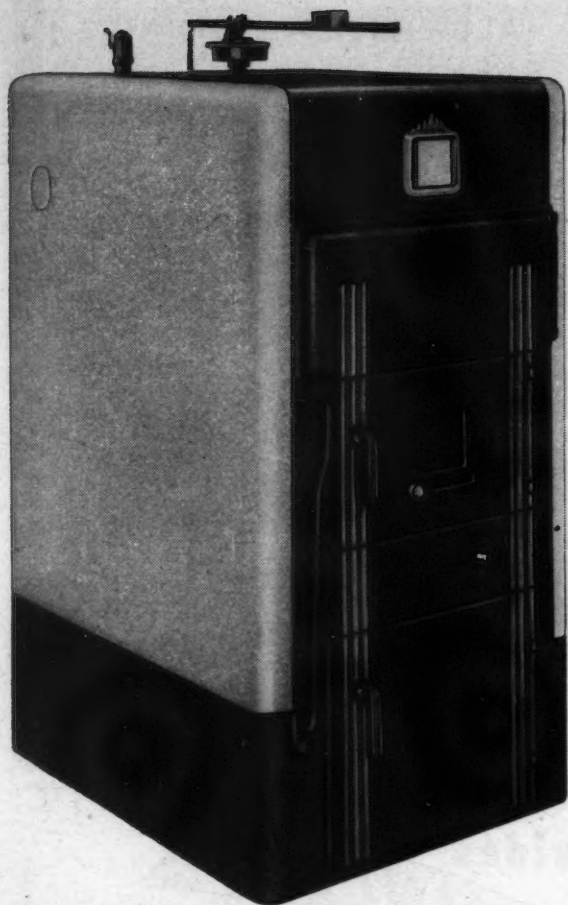
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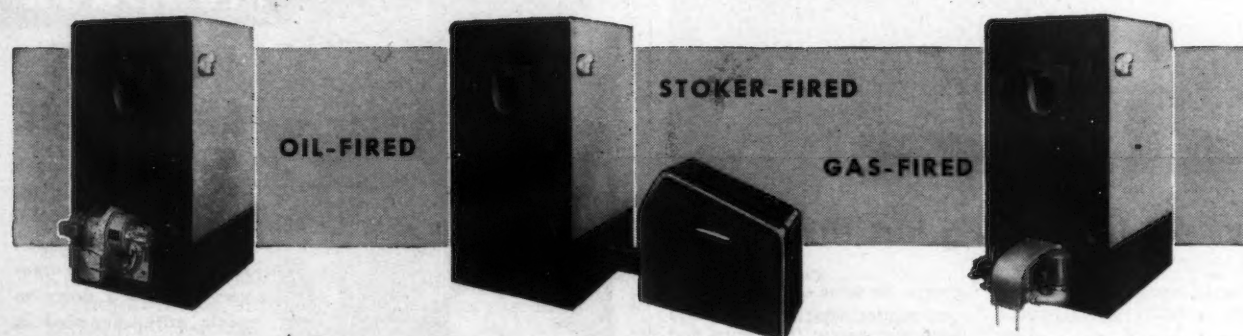
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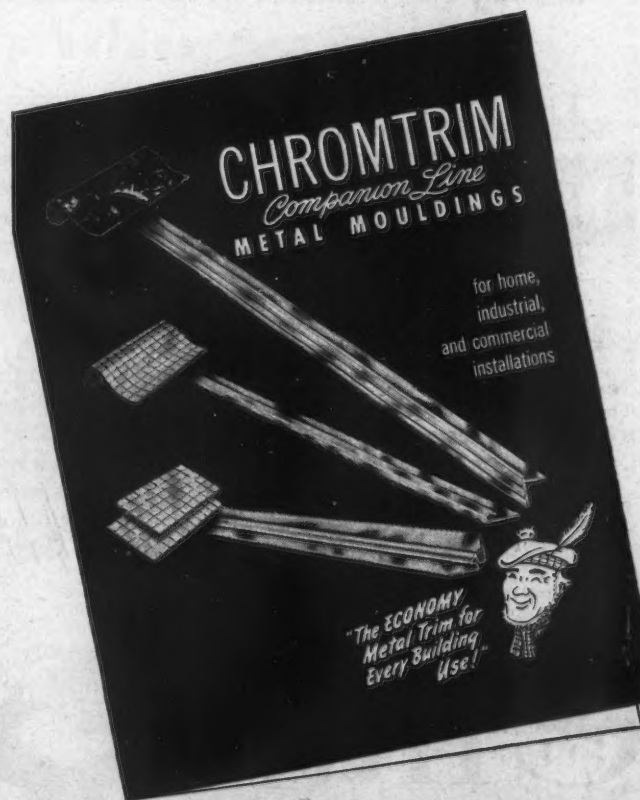
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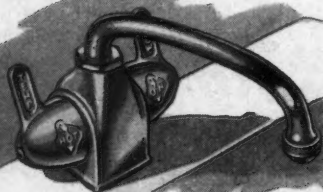
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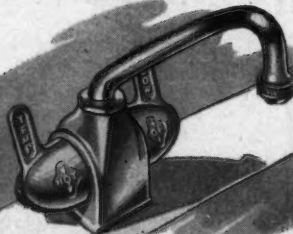
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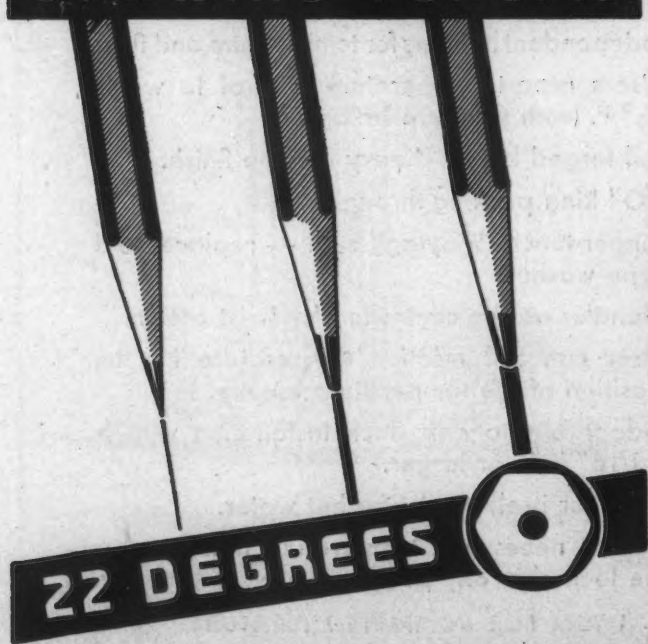
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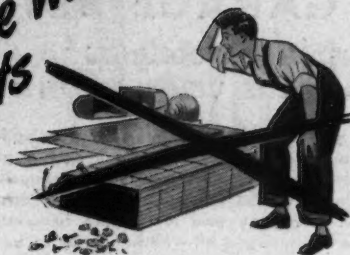
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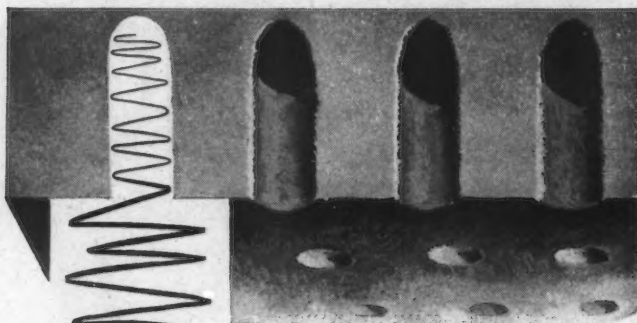
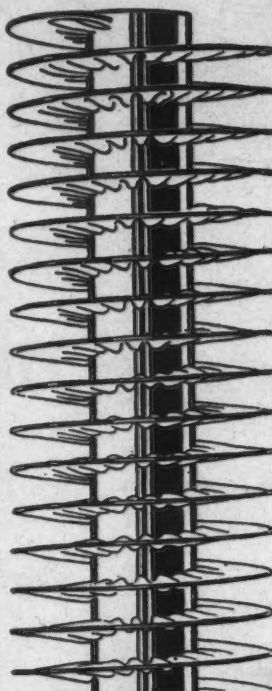
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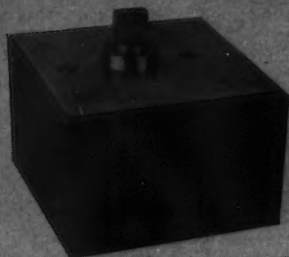


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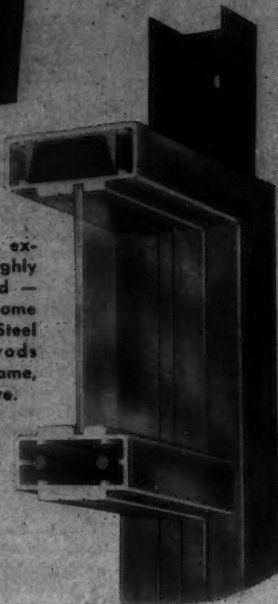
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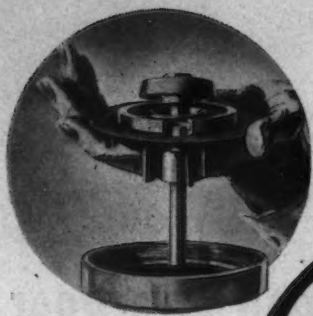
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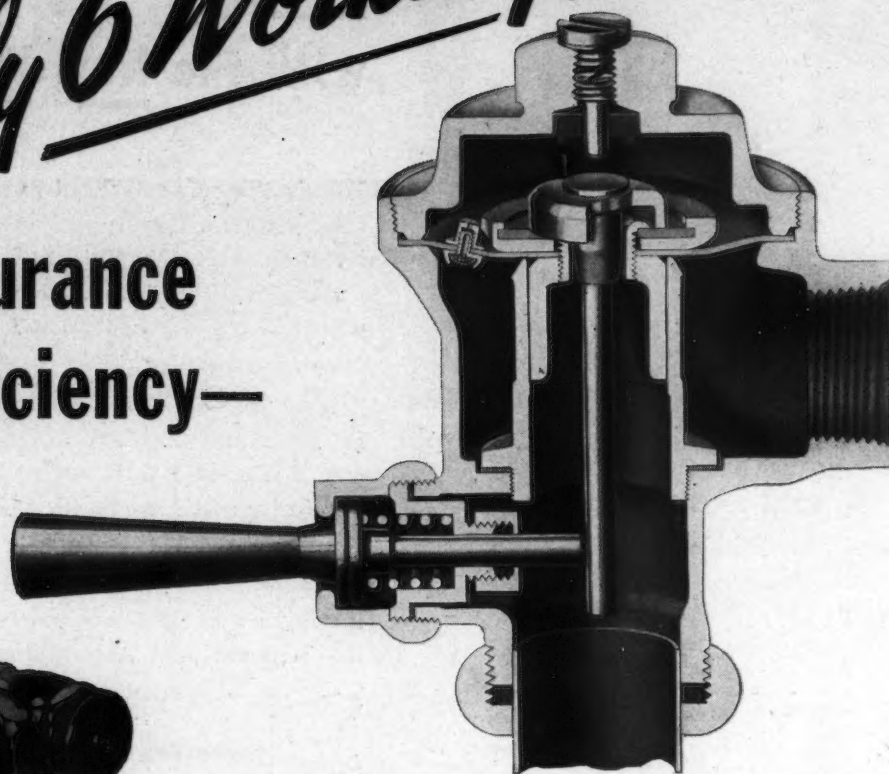
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IN CANADA: THE JAMES ROBERTSON COMPANY, LIMITED • MONTREAL • TORONTO • ST. JOHN, N. B.



A Wood-Faced Fire Door which offers these advantages

1. Increased Safety

The only wood-faced fire door which bears the Underwriters' label. All Weldwood Fire Doors are approved for class B openings.

2. Beauty

Because of their beautiful wood faces Weldwood Fire Doors harmonize perfectly with any decorative scheme.

3. Durability

The Underwriters' Laboratories tested a Weldwood Fire Door for durability by mechanically opening and closing it 200,000 times. At the end of the test, the door was unaffected and still opened and closed perfectly.

4. Dimensional Stability

Weldwood Fire Doors are so dimensionally stable that we guarantee them against sticking in summer or rattling in winter due to any dimensional changes in the door.

5. Light Weight

At last... a really fireproof door that is not heavy or unwieldy. A standard 3 x 7 door weighs approximately 80 lbs.

6. Vermin and Decay Proof

The mineral composition core used in Weldwood Fire Doors is permanently resistant to fungus, decay, and termites.

7. High Insulating Qualities

Another noteworthy characteristic of the core is its high insulating value over a wide range of temperatures. It is efficient against temperatures from freezing up to that of superheated steam.

8. Moderate Cost

Investigate these doors for use on your next job. You will be pleasantly surprised at the low initial cost, and the minimum of maintenance required.

Lasting Fire Protection Plus the Beauty of Real Wood with the New Weldwood Fire Door

Here's the newest Weldwood combination of *beauty* plus *utility*: a fire-safe door that carries the Underwriters' label... faced with fine cabinet hardwood for decorative beauty.

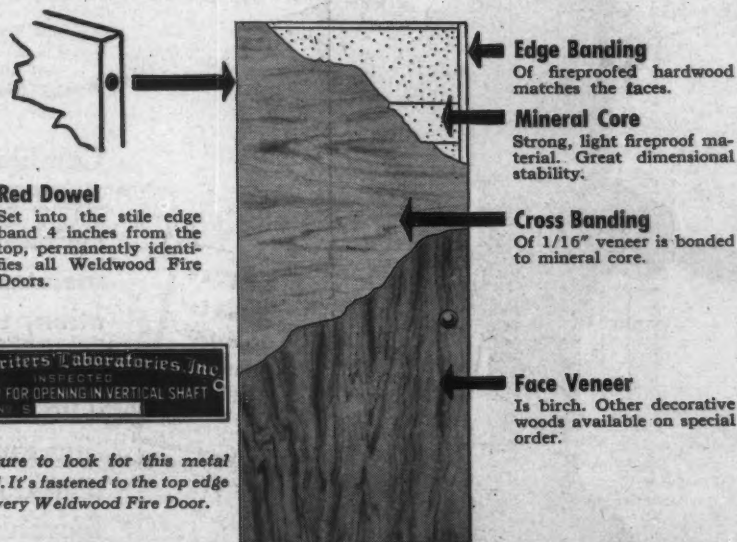
Now your *entire building* can be beautifully finished. It's no longer necessary to break up a decorative motif to gain fire-safe construction.

And we do mean *fire-safe!* In the regular one-hour fire test by the Underwriters' Laboratories,

the Weldwood Fire Door withstood an ultimate temperature of 1700°. *Yet the unexposed surface remained cool to the touch!*

Cost? So moderate it will surprise you. Maintenance expense? Negligible. Combine those two facts with the great dimensional stability that spells long service life, and you soon see what a *beautiful bargain* the Weldwood Fire Door really is.

Write for full particulars.



WELDWOOD COMPANION DOOR for matching installations

When absolute fire protection isn't a necessity... yet when you want a really first-class opening... choose the new Standard Weldwood Flush Door.

It is made with the same incombustible mineral core but without the fireproofed edge banding and, therefore, does not carry the Underwriters' label. Otherwise it offers the same advantages

...amazingly high dimensional stability, beauty, durability, lightweight, high insulating qualities... and it sells for less than the fire door.

Weldwood Flush Doors can be matched perfectly with the Fire Doors, to carry the same decorative theme throughout the building.

Write for full information.

UNITED STATES PLYWOOD CORPORATION

55 West 44th Street, New York 18, N.Y.

Distributing units in Baltimore, Boston, Brooklyn, Chicago, Cincinnati, Cleveland, Detroit, Fresno, High Point, Los Angeles, Milwaukee, Newark, New York, Oakland, Philadelphia, Pittsburgh, Portland, Ore.; Rochester, San Francisco, Seattle. Also U. S.-Mengel Plywoods, Inc., distributing units in Atlanta, Dallas, Houston, Jacksonville, Louisville, New Orleans, St. Louis, Tampa. In Canada: United States Plywood of Canada, Limited, Toronto.